

Technical Report 1336

**Preparing Brigade Combat Team Soldiers for
Mission Readiness Through Research on Intangible
Psychological Constructs and their Applications:
Phase I**

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**United States Army Research Institute
for the Behavioral and Social Sciences**

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14. ABSTRACT This research consisted of two phases. In the initial phase, covered in this report, emphasis was placed on identification of psychological constructs that were determined to be critical for operational units as they prepared to deploy. To support the research objectives, a comprehensive literature review including academic and military sources was conducted and approximately one hundred Soldiers and leaders were interviewed. Several meta-constructs were identified, each of which had multiple sub-constructs embedded within them. Interviews with Soldiers and leaders assisted in reducing the list to those intangibles most critical to mission readiness and identifying training gaps related to the criticality and effectiveness of the relevant intangibles. This identification assisted the second phase of this research that focused on instrument development and identification of effective learning methods; the second phase is covered in a second report. See also ARI Technical Report 1333.					
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PREPARING BRIGADE COMBAT TEAM SOLDIERS FOR MISSION READINESS THROUGH RESEARCH ON INTANGIBLE PSYCHOLOGICAL CONSTRUCTS AND THEIR APPLICATIONS: PHASE I

EXECUTIVE SUMMARY

Research Requirement:

Typically the Army focuses on training tangible skills, such as marksmanship and land navigation, but avoids much emphasis on explicitly learning about or training the relevant, but intangible psychological constructs, such as confidence and grit. Such constructs are labeled as intangible because they are difficult to define and measure. However, the Army has recently explored other approaches to training such as Outcomes Based Training and Education (OBT&E). Such an approach places importance on psychological constructs that are difficult to measure. This research sought to focus on identifying the critical intangibles relevant for operational units that are required in order to prepare for deployment.

Procedure:

Through a synthesis of the literature and feedback from Soldiers and leaders, a subset of critical intangibles to Soldier mission readiness was identified. Over 100 academic research articles as well as current Army doctrine were reviewed to assist in the identification. Likewise, approximately 100 Soldiers and leaders from lower enlisted to brigade staff were interviewed about the importance and relevance of psychological constructs as related to their preparation for deployment. Intangibles were examined using the following criteria: criticality to mission readiness, current training effectiveness, need for new or improved training, and required frequency of training.

Findings:

Quantitative and qualitative data collected during interviews and focus groups with Soldiers were used to identify the most critical intangibles to Soldier mission readiness and nominate a select list of intangibles for further investigation in a second phase. Initially, five meta-constructs were identified as important for mission readiness. These included: *survivability; self-perception; environmental understanding; values, principles, standards, and quality; and personal drive*. Each of these meta-constructs consisted of sub-constructs. For instance, constructs determined to be important for the meta-construct *self-perception* included, *self-confidence, self-efficacy, and self-awareness*.

Utilization and Dissemination of Findings:

The findings from this phase of the research were used to reduce the broad list of intangibles to a select list for further research in a second phase. Within the second phase focus was placed on the preliminary stage of instrument development. The research discussed in this report and the research on measurement will aid the follow-on research that will focus on

instrument development and identification of effective learning methods. The identification of relevant psychological constructs will assist the Army in enhancing Soldier psychological readiness for their respective missions.

PREPARING BRIGADE COMBAT TEAM SOLDIERS FOR MISSION READINESS
THROUGH RESEARCH ON INTANGIBLE PSYCHOLOGICAL CONSTRUCTS AND
THEIR APPLICATIONS: PHASE I

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PREPARING BRIGADE COMBAT TEAM SOLDIERS FOR MISSION READINESS THROUGH RESEARCH ON INTANGIBLE PSYCHOLOGICAL CONSTRUCTS AND THEIR APPLICATIONS: PHASE I

Introduction

The Army has traditionally excelled at preparing its Soldiers tactically and technically for the rigors of deployment and combat. Yet the trend in contemporary warfare demands that attention and importance be paid to the human side of operations. For instance, the U.S. Army Study of the Human Dimension stated it this way:

Soldiers will conduct operations in an era of persistent conflict amongst populations with diverse religious, ethnic, and societal values. Faced with continuous employment across the full range of military operations, the Army will require extraordinary strength in the moral, physical, and cognitive components of the human dimension. (U.S. Army TRADOC, 2008, 1 April, p. iii).

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) employs the adjective intangible to describe psychological constructs that contribute to Soldier mission readiness across the human side of operations. Soldier mission readiness describes Soldiers' preparedness for all missions (e.g., U.S. based disaster relief, short-term contingency operations, long term deployments, counterinsurgency operations). Intangible psychological constructs include adaptability, self-awareness, sense-making, warrior ethos, confidence, resilience, and moral ethical judgment; to name a few. A number of programs have already been developed to train and enhance performance in the intangibles. Action has also been taken at the Combat Training Centers (CTC) and unit training environment to better integrate aspects of the human side of operations into existing tactical training exercises. At the same time, some training methods in the Army are more prone than others in fostering the development of intangible constructs. The concept of Outcomes Based Training and Education (OBT&E), for example, takes a more holistic approach to training. Consequently, it purports to do a better job of enhancing Soldier performance in intangible constructs than traditional training methods (Perry & McEnery, 2009). Overall, then, the Army is aware of and taking steps toward readying Soldiers for the high psychological demands of the contemporary mission set.

Even so, Commanders and their training support staff at the Brigade Combat Team (BCT) level are faced with a myriad of programs and ideas about how to best train their Soldiers for the rigors of contemporary warfare's human side of operations. Given limited time, and a large number of individual and collective tactical and technical training tasks to accomplish, Commanders need a research-based prioritization and implementation plan for efficient and effective training on intangible constructs. The purpose of this research then is to identify the intangible constructs themselves and prioritize them for Soldier mission readiness. Using a reduced set of high priority intangible constructs, this research will identify the best training methods for them along with measurement tools to support training evaluation. Lastly, this research will synthesize the findings into an overarching training strategy for psychological intangible constructs.

The purpose of this literature review, then, is to first identify relevant intangible constructs that doctrinal publications and research literature find are important to Soldiers and unit leader readiness. Application articles are particularly relevant to this research. They may not cite the research behind their ideas, but may nevertheless provide important insights to the eventual construction of a training and measurement strategy. Second, examine each construct in terms of related training and performance outcomes. Third, apply the results of the literature review to inform interview and focus group protocol development for follow on data collection.

Literature Review

The literature review searched a variety of electronic databases using a list of relevant search terms. Data bases consulted include: Defense Technical Information Center (DTIC), the U.S. ARI on-line library, EBSCO Information Services, PsycINFO, PsycARTICLES, Medical Literature Analysis and Retrieval System Online (MEDLINE), Center for Army Lessons Learned (CALL), Combined Arms Research library, and Google. Searches were also conducted on a variety of different government websites to include Army Knowledge On-line (AKO), Army Training Information Architecture (ATIA), Army Publishing Directorate, the Army Training Network, and Army Medical Department (AMEDD). Table 1 displays the search terms that were used in various pairings and combinations. Search terms were created in multiple research team brainstorming sessions.

Table 1.

Search Terms

Warrior ethos	Confidence	Humility	Accountability
Resiliency	Adaptability	Pride	Loyalty
Hardiness	Sense-making	Discipline	Duty
Spirit	Situational awareness	Patriotism	Respect
Grit	Mental agility	Moral-ethical judgment	Selfless service
Self-efficacy	Sound judgment	Empathy	Honor
Self-awareness	Judgment	Authenticity	Integrity
Personal courage	Initiative	Will	Motivation
Innovation	Performance	Training	Outcomes

In addition, the lists of references at the end of relevant articles were searched to identify other sources that expanded upon an important idea or concept. In total, the literature review returned 117 articles relevant to the research topic. During the conduct of the literature review, it became apparent that some intangible constructs possessed similar content or overlapped considerably with one another. Accordingly, similar constructs were grouped under meta-construct headings. A total of five meta-constructs were tentatively identified: survivability; self-perception; environmental understanding; values, principles, standards and quality; and personal drive. Within the meta-construct heading each intangible construct is defined and

relevant research identified. Evidence of how the construct is applied via training, assessment, or other applications is also identified.

Meta-constructs

Survivability

Five constructs were reviewed within the survivability meta-construct: resiliency, hardiness, warrior ethos, warrior spirit, and grit. Broadly speaking, survivability, in a military context, means the ability to remain mission capable after a single engagement. Each of the five constructs content addresses some aspect of maintaining one's capabilities under extreme conditions, thus the meta-construct created to encompass them all is termed survivability.

Resiliency. The value of resiliency to the Army is readily apparent in the vast amount of attention it has received in recent years. Not only is the concept thoroughly incorporated into doctrine (Department of the Army, 2005; Department of the Army, 2006a; Department of the Army, 2006b; Department of the Army, 2006c; Department of the Army, 2009), but the Army is currently committed to enhancing Soldier resilience throughout the entire force (TRADOC, 2010) by providing on-line assessment tools, individually tailored self-help modules, mandatory resiliency training, and master resiliency trainers (for a brief review of military organizations and programs contributing to resilience-building see Bowles and Bates, 2010).

Army doctrine suggests that resiliency is essential to mission accomplishment (Department of the Army, 2006b). It is the means by which Soldiers overcome adversity and succeed in difficult situations (Department of the Army, 2005; Department of the Army, 2006b). The Army defines resiliency as “showing a tendency to recover quickly from setbacks, shock, injuries, adversity, and stress while maintaining a mission and organizational focus” (Department of the Army, 2006b, p. 5-3) and “...having the ability to grow and thrive in the face of challenges...” (<http://www.cgsc.edu/csf/faqs.asp>). The Army further suggests that resiliency can be developed through tough and realistic training that allows Soldiers and leaders the opportunity to become more comfortable and confident with ambiguity (Department of the Army, 2005; Department of the Army, 2006b). Replicating the stress, sounds, and conditions of the actual operational environment through the use of training aides, devices, simulators, and simulations (TADSS) is one suggested method (Department of the Army, 2006c). In addition, the Army has turned to resiliency-building programs. In 2007, the Army mandated the Battlemind training system (Bowles & Bates, 2010). Under this program, Soldiers receive the tools and develop the skills needed to prevent or reduce combat-related behavioral health problems (Department of the Army, 2009). The Battlemind training system includes both pre- and post-deployment training modules.

Research conducted by the Walter Reed Army Institute of Research (WRAIR) indicates that Battlemind training is effective. In 2007, the Fifth Mental Health Advisory Team (MHAT) conducted a mental health assessment of 2,295 Soldiers serving in Iraq and Kuwait, and 699 Soldiers serving in Afghanistan (MHAT V, 2008). They found a negative relationship between attending pre-deployment Battlemind training and reports of mental health problems. The report rate (to mental health professionals) for those who did not attend was 8.5% higher than those who did, and the relationship held even after controlling for rank, gender, months deployed, and

levels of combat exposure (MHAT V, 2008). In 2009, Adler, Bliese, McGurk, Hoge, and Castro looked at the effect of different mental health interventions on 2,297 U.S. Soldiers after a year-long deployment. They randomly assigned participants to one of three interventions: standard post-deployment stress education, Battlemind debriefing, and small and large group Battlemind training. They found that participants who received Battlemind debriefing reported fewer posttraumatic stress symptoms, depression symptoms, and sleep problems than those who received the stress education. They also found that those who took small group Battlemind training reported fewer posttraumatic stress symptoms and sleep problems than those who received the stress education. Finally, they found that participants who took the large group Battlemind training reported fewer posttraumatic stress and depression symptoms, as well as lower levels of stigma as compared to the group that received the stress education (Adler, et al., 2009).

Since 2007, the Army has continued to refine its approach to resiliency training and its various applications. In 2009, Battlemind training was incorporated into a new program referred to as the Comprehensive Soldier Fitness Program based on Dr. Martin Seligman's University of Pennsylvania resiliency program (Novotney, 2009). Under this program, Soldiers develop resilience through five dimensions of strength: physical, emotional, mental, spiritual, and family (<http://www.cgsc.edu/csf/faqs.asp>).

Outside of the Army, resiliency has also been studied as it relates to reducing depression and its associated difficulties, particularly in high risk populations. In 1999, Buchanan, Gardenswartz, and Seligman conducted an experiment with 120 college students who were at risk for depression using an eight week, cognitive-behavioral intervention designed to prevent future depression. The students were assigned to the intervention or the control group and were assessed six to 30 months after the start of the experiment. Results showed that participants who received the intervention had fewer self reported symptoms of physical illness, fewer doctor's visits overall, and fewer illness related visits to Student Health than the control group. In addition, those that had the intervention were more likely to have healthy eating habits and visit the doctor for a checkup (Buchanan et al., 1999). Seligman, Schulman, DeRubeis, and Hollon (1999) conducted a similar experiment with 231 college students who were at risk for depression. Results showed that participants who received the intervention had fewer episodes of generalized anxiety disorder, moderate depressive episodes, depressive symptoms, and anxiety symptoms than the control group. In addition, the group that received the intervention showed greater improvement in explanatory style, hopelessness, and dysfunctional attitudes than the control group (Seligman et al., 1999). Seligman, Schulman, and Tryon (2007) also conducted a similar experiment, where students were assessed six months after the start of the experiment. Results showed that participants who received the intervention had significantly fewer depressive symptoms and anxiety than the control group. In addition, the participants who received the intervention had significantly better well-being than the control group (Seligman, et al., 2007).

As evidenced in the previous paragraphs, the body of resilience research indicates that its training interventions appear to reduce mental health problem indicators, episodes of mental health disorder, and are associated with positive affect and health habits. Originating in research from the Army's WRAIR or the applied academic research of Dr. Martin Seligman, resiliency

applications have shown to make a positive difference when compared to groups who undergo other or no other training intervention. If the research upon which the concept of resiliency holds, this represents an important training intervention toward creating Soldier readiness for the psychological and human challenges of contemporary military operations.

Hardiness. In the popular literature, hardiness is sometimes seen as interchangeable with resilience (e.g., New Directions Behavioral Health, n.d.; Walker & Heffner, 2010; Wellspring Camps, n.d.). However, current research in this area suggests hardiness is more of a “factor or pathway that leads to resiliency” (Bartone, 2006, p. S132). Hardiness was originally defined as “a personality attribute that reflects the courage and motivation to cope effectively with the stressors of daily life” (Vogt, Rizvi, Shipherd, & Resick, 2008, p. 61). As such, much of the research to date has focused on hardiness as a trait-based construct and its relationship to various outcomes such as stressors, strains, social support, coping, and performance (Bartone, 1999; Bartone, Roland, Picano, & Williams, 2008; Dolan, & Adler, 2006; Eschleman & Bowling, 2010; Maddi, Matthews, Kelly, Resurreccion, & Villarreal, 2010).

Recent research suggests that hardiness can be developed by and for certain situations (Bartone, 2006; Bartone, Barry, & Armstrong, 2009; Maddi, 2007). In line with this new way of thinking, Maddi et al. (2010) defined hardiness as “a specific set of attitudes and skills that provide the courage, motivation, and strategies leading to resilience and growth in stressful circumstances.” Two studies lend support to hardiness being susceptible to development (Maddi, Harvey, Khoshaba, Fazel, & Resurreccion, 2009; Zach, Raviv, & Inbar, 2007). Zach et al. looked at the effect of a gradual training program on 71 Israeli military officers in terms of physical performance during stressful situations. As part of this research, participants were measured on hardiness at the beginning (normal) and end of training (stressful). Results showed an improvement in hardiness after participants had taken the training. In 2009, Maddi et al. looked at the effect of a hardiness training course on the level of hardiness in college students. Results showed an increase in hardiness after taking the class (Maddi, et al., 2009). These two studies suggest that hardiness can be improved with training. Yet the unique and relatively small sample sizes used in each study (Israeli military officers and college students) points to a need for additional research to confirm and generalize these preliminary findings.

Warrior ethos. The Army defines warrior ethos as “the professional attitudes and beliefs that characterize the American Soldier” (Department of the Army, 2006b, p. 4-10). The following four tenets convey this idea (Department of the Army, 2008):

- I will always place the mission first;
- I will never accept defeat;
- I will never quit; and
- I will never leave a fallen comrade.

The available literature on warrior ethos is substantial, though the vast majority of the articles tend to be editorials and opinion pieces or Army manuals (e.g., Department of the Army, 2005; Martin, 2006). Research reports are not nearly so common, and no peer-reviewed journal articles were found. However, the available literature clearly suggests that warrior ethos is an essential construct for Army Soldiers to possess (Department of the Army, 2005). Current Army

doctrine identifies warrior ethos as one of the key components of success for full spectrum operations (Department of the Army, 2006c), a central component of successful leadership (Department of the Army, 2006b), and the primary means by which Soldiers endure and succeed in difficult environments (Department of the Army, 2006b). In addition, the Army sees this construct as its moral and ethical soul (Warfighter Guide, 2007) and is the foundation of a force committed to victory in peace and war (Department of the Army, 2008).

ARI research on the concept of warrior ethos drew from the above and many other sources to affirm its importance (Ricco, Sullivan, Klein, Salter & Kinnison, 2004). At its heart, the warrior ethos embodies a persevering commitment to the unit, its mission, and one's fellow comrades in arms under conditions of threat of death to self and others. Knowing each person in the unit embodies this preserving commitment and provides each Soldier the confidence to go into a potentially deadly situation with confidence. It also provides a sense of personal safety, knowing that the person to their left and right will not quit in the face of adversity, and that they will be evacuated if wounded, rescued if captured, or have their body recovered if killed in action. Ricco et al. cite a number of Medal of Honor and other award citations as examples of what warrior ethos is and how it inspires and motivates Soldiers to act in ways consistent with its tenets.

The literature suggests warrior ethos is a perishable construct that must be constantly maintained (Department of the Army, 2006b; Warfighter Guide, 2007). As a result, the Army is continuously looking at ways to inculcate this construct among its personnel. For example, ARI (Klein, Salter, Riccio, & Sullivan, 2006; Riccio et al. 2004) looked into different ways of introducing warrior ethos into the Army's programs of instruction (POI); specifically, introducing warrior ethos into initial entry training (IET). During phase one, a team of scientists and operational subject matter experts derived value-based attributes from the tenets of warrior ethos. This was done by evaluating stories of Soldiers who demonstrated warrior ethos. These value-based attributes were then linked to warrior drills using a functional area analysis (FAA). The nine warrior drills identified were then broken down into observable behavioral components (along with any barriers or impediments associated with them). Thus, via observation and assessment of the behavioral components, leaders and trainers are able to identify whether a Soldier does or does not demonstrate behaviors consistent with warrior ethos.

In phase two, the phase one value-based attributes were incorporated into a specific training event during IET; namely, the teamwork development course which is a series of obstacle courses used to develop teamwork and problem-solving skills. This was done through the development of a warrior ethos-based training support package (TSP) and after action review (AAR) behavioral checklist. Both the TSP and AAR were designed to educate trainers on the concept of warrior ethos and to help them facilitate its transfer to their trainee population. The researchers reported that the training worked better in theory than in practice. Many trainers focused naturally on successfully moving through the obstacles rather than ensuring trainees employed or practiced teamwork to do so. Thus, overt training of the warrior ethos may be more difficult to implement than originally thought. Even so, the research on warrior ethos cited above makes a valuable contribution in breaking the construct down into trainable component parts. Table 2 displays the various component parts of warrior ethos.

Table 2.

Trainable Components of Warrior Ethos

Warrior Ethos Tenets	Components
Mission first, never quit, never accept defeat, never leave a fallen comrade	Perseverance – ability to work through adversity, and to embody each tenet of warrior ethos.
Mission first	Prioritize – ability to select from specified and implied tasks, and accomplish them in a sequence appropriate to mission accomplishment.
Mission first, Never accept defeat	Make Tradeoffs – understanding the need to make frequent trade-offs in the application of tactics, techniques, and procedures in addressing battlefield options when frequently there are no right answers.
Never quit, Never accept defeat	Adapt – flexibility and smooth reaction to changes in mission and unexpected, often unpleasant, surprises whether from enemy contact, change in weather or terrain, or change in mission from combat to stability and support operations and back.
Never quit, Never leave a fallen comrade	Accept Responsibility for Others
Never quit, Never leave a fallen comrade	Accepting Dependence on Others
Mission first, Never quit, Never accept defeat, never leave a fallen comrade	Motivated by a Sense of Calling – warrior ethos implies a primary motivation derived from Army values and belief in the Army’s fight, whether from religious beliefs or the imperative to fight “for my buddies.”

Warrior spirit. The available literature on the topic of warrior spirit suggests that it is synonymous with the construct of warrior ethos (e.g., Cheeseborough, 2009; Connor, 1999; Johnson, 1994). In fact, the prevalence of the term, warrior ethos, in the last decade suggests the term warrior spirit has been superseded by the more modern term (e.g., Martin, 2006; Tenace, & Doty, 2008). Consequently, the previously cited research on warrior ethos applies to warrior spirit as well.

Grit. Grit is defined as a “[trait-level] perseverance and passion for long-term goals. Grit entails working strenuously in the face of challenges, and maintaining effort and interest over years despite failure, adversity, and plateaus in progress. The gritty individual approaches achievement as a marathon; his or her advantage is stamina. Rather than stubbornness, Duckworth identified that grit is about having a long term goal that sustains a person’s interest

over time (e.g., something a person is passionate about). Whereas disappointment or boredom signals to others that it is time to change trajectory and cut losses, the gritty individual stays the course” (Duckworth, Peterson, Matthews, & Kelly, 2007, p. 1087-1088; Duckworth, & Quinn, 2009).

“Grit” is a construct that has only recently gained widespread attention. In 2007, Duckworth, et al. (2007) created the construct of grit and developed a new measure called the grit scale. As part of their validation process, they tested the measure in several different areas. In these studies, they found the following: 1) grit predicts an adults’ level of education, 2) a person’s level of grit appears to increase with age, 3) grit predicts academic achievement, 4) grit predicts freshman cadet retention during the first year of summer training at the U.S. Military Academy, and 5) grit predicts advancement to higher rounds in a spelling bee competition.

The literature typically approaches grit-type attributes as a trait-based construct. However, Angela Duckworth, the leading researcher on grit and the person who coined the term, suggests that qualities of grit may in fact be teachable (Packard, 2007). Yet to date, there is no scientific evidence to support this claim.

Research on grit shows promise for its relationship to educational achievement and persisting to complete demanding training regimes. In 2009, Duckworth, and Quinn created and validated a shorter version of the original grit scale. Results from the shortened scale were comparable to the original scale. Grit was shown to be positively correlated with age and educational attainment. In addition, it was associated with freshmen cadet retention during their first year of summer training at the U.S. Military Academy and final round spelling bee attainment. ARI used the Duckworth et al. (2007) grit scale as part of a research effort that explored the extent to which perseverance contributed to a Soldier completing the Special Forces Assessment and Selection (SFAS) process and being selected for Special Forces (SF) training (Beal, 2010). Early in their analysis, the author determined that the consistency of interest subscale was not a significant predictor of SFAS selection. Therefore, it was discarded from further analysis. However, findings from the remaining subscales indicated a significant positive (albeit weak) relationship between perseverance and SFAS completion. As such, the author recommended that the grit scale not be used on its own, but in conjunction with other measures to inform and support recruiting and selection decisions (Beal, 2010).

Summary. The construct of resiliency possesses the most evidence as an important intangible construct. Its conceptualization is sound and training applications have been developed and tested for effectiveness. Resiliency’s one drawback may be that its training is offered as a separate program rather than part of, or integrated in to, unit collective training. Integration into unit training would most likely enhance the application of resiliency principles on-the-job. Hardiness, while possessing a sound conceptual beginning, possesses less research and evidence on if and how it can be developed. And hardiness training studies have only been conducted on small unique samples. A closer examination of content domain that is unique to hardiness (e.g., divergent with resiliency for example) might reveal important skills worthy of integration into BCT Soldier mission readiness training.

Warrior ethos and warrior spirit are comprised of essentially the same content. Thus, there is no need to differentiate between the two constructs. The Army's validity of warrior ethos' importance is bound up in its culture and values as a fighting force operating in situations where life itself is at stake. Considerable story evidence of its importance is found within Medal of Honor winner award citations. The importance the Army ascribes to warrior ethos resulted in the development of an extensive warrior ethos training regime for all Soldiers. Yet there is little to no research on the effectiveness of warrior ethos training itself. Current training on warrior ethos, then, ought to be examined more closely for its ability to inculcate and reinforce its tenets.

The concept of grit is the least evolved of the survivability constructs. At first review, grit's unique contribution appears to be that it enhances or enables achievement and accomplishment. Items of the grit scale that operationally define this part of grit, then, can serve as a launching point for developing training that will reinforce it on-the-job.

Self-perception

Three constructs were reviewed within the self perception construct: self-confidence, self-efficacy, and self-awareness. Self perception is how one views oneself. In scientific literature it is also referred to as self concept, which can be defined as "a set of cognitive structures (self-schemas) that provide for individual expertise in particular social domains" (Markus, Moreland, & Smith, 1985, p. 1). Self-confidence, self-efficacy, and self-awareness are intangible constructs that are examples of self schemas. Each construct describes an aspect of how one views oneself.

Self-confidence. Army doctrine defines confidence as, "projecting self-confidence and certainty in the unit's ability to succeed in whatever it does; able to demonstrate composure and outward calm through steady control over emotion" (Department of the Army, 2006b, p. 5-1). Field Manual (FM) 6-22, Army Leadership, discusses some of the important behavioral outcomes associated with confidence. For instance, "the confidence of a good leader is contagious and quickly permeates the entire organization, especially in dire situations" (Department of the Army, 2006b, p. 5-2). In combat, confident leaders help Soldiers control doubt while reducing team anxiety. "Combined with strong will and self-discipline, confidence spurs leaders to do what must be done in circumstances where it would be easier to do nothing" (Department of the Army, 2006b, p. 5-2). Field Manual 6-22 further elaborates on the ability of confidence to reduce doubt and anxiety regarding leaders performing in adverse conditions. "Displaying confidence and composure when things are not going well can be a challenge for anyone, but it is important for the leader to lead others through a grave situation" (Department of the Army, 2006b, p. 7-13). Although FM 6-22 is specifically written for Army leaders, its description of self-confidence has applicability for Soldiers as well.

In FM 6-22 self-confidence is described as a factor of leader presence; leaders who lack self-confidence and leaders who are overly self-confident can perform negatively. "A leader lacking confidence that shows hesitation in the face of setbacks can trigger a chain reaction among others. A leader who is over-confident in difficult situations may lack the proper degree of care or concern" (Department of the Army, 2006b, p. 7-13). It is noted in FM 6-22 that leading with confidence requires a heightened self-awareness and ability to master emotions. A

synthesis of these statements would suggest that self-awareness may moderate the relationship between self-confidence and leader presence. In other words, leaders who lack self-awareness may be overly confident or lack confidence, negatively affecting their leader presence. Overall, this could have a negative impact on their leader effectiveness and unit performance.

Kipnis and Lane (1962) examined the relationship between a lack of self-confidence and passive leadership techniques using a sample of 77 Navy petty officers. Results indicate that participants who lacked self-confidence were significantly less willing to hold face-to-face discussions with subordinates and significantly more likely to refer the subordinate to a superior. These same participants tended to rely upon the use of administrative rules to solve supervisory problems (Kipnis & Lane, 1962). These findings provide evidence that the psychological construct of self-confidence, in this case a lack of self-confidence, is related to tangible leader behavior (e.g., face-to-face discussions). Further, the findings would seem to support the assertions made in FM 6-22 concerning the link between self-confidence and leader presence. Specifically, leaders lacking in self-confidence are more likely to employ passive leadership techniques; influencing others' interpretation of their leader presence.

The importance of self-confidence with respect to training is also discussed in FM 6-22. "Realistic training developed around critical tasks and battle drills is a primary source for the resilience and confidence to win along with the ability to gut it out when things get tough, even when things look hopeless" (Department of the Army, 2006b, p. 10-7). Training and practice under conditions that replicate combat (i.e., realistic training) are no doubt helpful to building self-confidence. And both self-confidence and confidence (the research does not readily distinguish between the two) have been shown to predict training outcomes. For example, research by Siem, Carretta, and Mercatante (1988) demonstrated that trainee self-confidence contributes to predicting completion of Undergraduate Pilot Training in the Air Force. And a longitudinal study of training outcomes by Warr, Allan, and Birdi (1999) investigated the relationship between several psychological constructs and training outcomes using a sample of motor vehicle technicians. The training involved lectures and practical demonstrations about the operation and interpretation of outputs from an electronic tool. Results indicated that immediate and delayed learning were predicted by trainee motivation, confidence, and use of certain learning strategies. Changes in job behavior were independently predicted by transfer climate and learning confidence training outcomes (Warr, Allan, & Birdi, 1999).

Self-efficacy. Self-efficacy is defined as, "the confidence in one's ability to succeed at a task or reach a goal" (Department of the Army, 2006b, p. 7-7). A number of studies with military and non-military samples scientifically examined the role self-efficacy as a measure of training outcomes and as a predictor of training performance and attrition. In an 8-week training process designed to train new recruits in Navy procedures, researchers found that self-confidence had a significant impact on training outcomes (Tannenbaum, Cannon-Bowers, Salas, & Mathieu, 1993). Notably the term self-confidence was used to describe two measures of self-efficacy: academic and physical self-efficacy. This points to the potential overlap between the constructs of self-confidence and self-efficacy conceptually and for practical purposes. The training consisted of classroom and field learning experiences, as well as academic and physical tests along with other measures of performance. Listed below are constructs and their relationship to

self-efficacy reported from this research (Tannenbaum, Cannon-Bowers, Salas, & Mathieu, 1993):

- Academic and physical self-efficacy is positively related to performance expectations;
- physical self-efficacy is positively related to training expectations;
- physical self-efficacy is positively related to training desires;
- academic and physical self-efficacy are strongly and positively related to overall performance;
- academic self-efficacy is positively related, and physical self-efficacy was negatively related to academic performance;
- physical self-efficacy, pre-training motivation, and expectation fulfillment are all positively related to physical performance; and
- self-efficacy is a significant predictor of training attrition.

Additional studies provide support for these findings. For instance, the skill acquisition of 93 trainees was assessed during a complex, air traffic controller simulation task (Ackerman, Kanfer, & Goff, 1995). In this study, four different measures of pre-training self-efficacy were found to be significantly related to task performance. In an investigation of negotiation training, Gist, Stevens, and Bavetta (1991) displayed a significant relationship between pre-training levels of self-efficacy and initial and delayed levels of performance. In other words, those with higher self-efficacy prior to training were likely to perform better at negotiations immediately following the training and six weeks later.

Studies involving self-efficacy along with other constructs points to what self-efficacy provides an individual that contributes to the quality of their accomplishments. In a study designed to understand persistence, Jacobs, Prentice-Dunn, and Rogers (1984) measured self-efficacy as it related to extreme failure on an initial performance task, followed by an assessment of persistence on a second unsolvable task. The sample consisted of 96 graduate students. Results indicated that self-efficacy expectancies were the best predictor of persistence. In another study of 254 employees, Chiaburu and Lindsay (2008) demonstrated that training self-efficacy was the primary predictor of motivation to learn. Those who believed that they were more likely to be capable of success in training displayed higher levels of motivation to learn. These two studies indicate that self-efficacy predicts both persistence and motivation to learn. Both persistence and motivation to learn are important contributors to an individual's ability to accomplish a goal, task, or mission.

Not all research on self-efficacy and training/performance outcomes supports a positive, cause and effect, all encompassing relationship between the two. Wolfe, Nordstrom, and Williams (1998) for example, examined trainees in a telemarketing program to determine if they could increase job performance by enhancing self-efficacy. Results indicated that while self-efficacy enhancement was a predictor of employment length, there was not a significant relationship between self-efficacy and job performance. Heggstad and Kanfer (2005) demonstrated support for self-efficacy as a consequence of training, but no evidence that self-efficacy could predict performance. Jennings (1991) used perceived self-efficacy as a method for evaluating the effectiveness of leadership training conducted at the Air Force's Squadron

Officer School. A measure of self-efficacy was used to examine the change in perceived self-efficacy related to leadership behaviors of the students in comparison to their idea of an ideal leader. The self-efficacy items addressed several specific, leader behaviors. The increase of perceived self-efficacy concerning the leader behaviors from pre-training levels to post-test levels displayed the greatest changes for leadership variables that were task-oriented: problem solving, planning and organizing, consulting and delegating, informing, clarifying, and monitoring. The change in perceived self-efficacy for all of these task-oriented leader behaviors was significant. The change in perceived self-efficacy was far less for interpersonal leader behaviors. Motivating was the only interpersonal leader behavior that significantly changed out of five tested variables. The interpersonal leader behaviors of managing conflict, team building, networking, supporting, and recognizing and rewarding all demonstrated no change in perceived self-efficacy.

In conclusion, the preponderance of research on self-efficacy demonstrates that it is an important contributor to individual accomplishment and training outcomes. Yet none of the research reviewed involved the development or improvement of self-efficacy, only its measurement as an existing attribute of the research participants. Thus, for the purposes of this research, what self-efficacy consists of and how those elements of it can be maintained, developed, or improved is not clearly stated in the literature. Even so, study findings above indicate that focusing on the development of persistence and motivation to learn (as self-efficacy predicts them) outcomes could be achieved not unlike those that would result from a self-efficacy derived training intervention. And extensive research on the measurement of self-efficacy holds promise for the development of content valid measures that could be employed by BCT commanders and training support personnel.

Self-awareness. The Army defines self-awareness as, “being aware of one’s self, including traits, feelings, and behaviors” (Department of the Army, 2006b, p. 8-8). Field Manual 6-22 provides examples of how to train and develop self awareness, e.g., Multi-Source Assessment and Feedback (MSAF), AARs, receiving coaching and mentoring, and informal feedback seeking. Further, the doctrine provides several examples of how self-awareness is related to performance. See Table 3 for a list of statements from FM 6-22 and associated constructs related to self-awareness (Department of the Army, 2006b).

The Army Training and Leader Development Panel (ATLDP) provided recommendations focusing on self-awareness and adaptability (Department of the Army, 2001). To meet this challenge ARI executed the Accelerating Leader Development (ALD) initiative. As part of the initiative ARI developed a battery of diagnostic tools to assess and enhance self-awareness. Each assessment tool is presented in Table 4 along with what it purports to measure (purpose column) (Leibrecht, McGilvray, Tystad, & Garven, 2009).

The diagnostic battery above is intended to establish a baseline of self-awareness. The ALD program model for leader growth presents self-awareness as important to the development of critical thinking skills and interpersonal skills (Leibrecht et al., 2009). Further, the model depicts some of the outcomes of enhanced self-awareness, such as motivation for improving, direction for growth, and structure for learning. The ALD program presents an extensive method for implementing the measurement of self-awareness toward the goal of general self-

development. Based on the “Purpose” column description in Table 4 the measures appear to be indirect indicators of self-awareness. Further investigation of the scales and items in the tools is needed to determine if they can be adapted for field use with BCT Soldiers. A review and content analysis of the scales and items could determine whether all or some of the scales and items are appropriate for field use.

Table 3.

The Relationship between Self-awareness and Associated Constructs

Self-awareness Statement from FM 6-22	Associated Construct(s)
Self-awareness has the potential to help all leaders become better adjusted and more effective.	Adaptability, Performance
Self-awareness enables leaders to recognize their strengths and weaknesses across a range of environments and progressively leverage strengths to correct these weaknesses.	Personal appraisal, Feedback-seeking, Self-Development
Leaders who lack self-awareness are often seen as arrogant and disconnected from their subordinates.	Leader presence, Leading by example, Creating a positive environment
For any leader, self-awareness is a critical factor in making accurate assessments of the changes in the environment and their personal capabilities and limitations to operate in that environment.	Situational awareness, Adaptability, Performance
Self-awareness helps leaders translate prior training to a new environment and seek out new information when the situation requires.	Training performance, Transfer of training, Self-development
Self-aware leaders are better informed and able to determine what needs to be learned and what assistance they need to seek out to handle a given situation.	Learning orientation, Sense-making, Performance
Adjusting one’s thoughts, feelings, and actions based on self-awareness is called self-regulation. It is the proactive and logical follow-up to self-awareness.	Self-regulation, Training performance, Self-development
Strategic leaders, more so than direct and organizational leaders, draw on their self-awareness and conceptual abilities to comprehend and manage their more complex environments.	Adaptability, Sense-making, Performance

Table 4.

List of Self-awareness Diagnostic Tools

Tool	Purpose
Personality Assessment	Measure stable traits to boost personal insights
Leadership Experiences Survey	Record history of leadership assignments
Multifactor Leadership Questionnaire (MLQ)	Assess transformational/transactional styles
Tacit Knowledge for Military Leadership (TKML)	Document tacit leadership knowledge
Leadership Opinions Survey	Measure self-development interest/motivation
Unit Cohesion Index (UCI)	Measure cohesion within own unit

The research on self-awareness indicates that it is related to performance outcomes. Atwater and Yammarino (1992) examined U.S. Naval Academy students and naval officers to investigate the relationship of self-awareness of one's own leadership behaviors to performance outcomes. Results indicated that leaders who displayed self-awareness concerning their leadership behaviors displayed a stronger relationship to the following outcomes: performance evaluation, recommendations for early promotion, and promotion recommendation. Church (1997) examined self-awareness using over 500 managers from four independent datasets. The research design investigated the relationship between self-awareness and performance. Results indicated that high-performing managers were significantly more self-aware than average-performing managers. The relationship was present regardless of data source, organization, or method for assessing managerial performance. Church (1997) also provided evidence that the construct of self-monitoring (self-regulation) was related to self-awareness. Interestingly, the Army's FM 6-22 postulates a relationship between self-awareness and self-regulation as well.

Summary. The constructs of self-confidence and self-efficacy are highly convergent concepts. Each construct to varying degrees predicts important outcomes such as achievement and training performance. Self-efficacy, however, possesses a stronger research foundation and considerable attention has been paid to its measurement. Thus, for the purposes of preparing Soldiers for mission readiness, attention ought to be paid to what constitutes the construct of self-efficacy can be integrated into BCT Soldier training. In so doing, the literature on self-confidence can play a supporting role.

Self-awareness is prominent both in Army doctrine as well as military and non-military research. The evidence is convincing that it is related to on-the-job performance. Accordingly, interventions that develop and provide practice of self-awareness skills ought to be integrated into BCT Soldier mission readiness training.

Environmental understanding

Four constructs were reviewed within the environmental understanding meta-construct: adaptability, situational awareness, mental agility and sound judgment, and sense-making. Literature concerning each of the construct's relationship to training and training outcomes is presented below. A summary is provided to discuss findings and construct similarities.

Adaptability. Field Manual 6-22 defines adaptability as “an individual’s ability to recognize changes in the environment, identify the critical elements of the new situation, and trigger changes accordingly to meet new requirements. Adaptability is an effective change in behavior in response to an altered situation” (Department of the Army, 2006b, p. 10-8). Further, FM 6-22 identifies two key components to adaptability:

- The ability of a leader to identify the essential elements critical for performance in each new situation.
- The ability of a leader to change his practices or his unit by quickly capitalizing on strengths and minimizing weaknesses (Department of the Army, 2006b, p. 10-9).

Mueller-Hanson, Wisecarver, Dorsey, Ferro, and Mendini (2009) examined how to develop and evaluate adaptability training for a military classroom setting and factors to consider beyond the classroom. The final product that they delivered was a handbook for anyone who wants to train adaptability in a military setting. Mueller-Hanson et al. (2009) covered the following topics in the handbook: defining adaptability, characteristics related to adaptive leader performance, how to identify adaptability training needs, how to create interactive training methodologies, samples for adaptability instruction, how to measure adaptability training with examples, and how to ensure transfer of training concerning adaptability. The related constructs discussed were experience, general intelligence, resiliency, openness, achievement motivation, tolerance of ambiguity, problem solving/decision-making skills, interpersonal skills, self and social-awareness, meta-cognitive skill, and self-efficacy/self confidence. Research citations are provided for each of the aforementioned related constructs. The handbook provides usable tools and guidance for each of the defined steps in developing adaptability training, including a sample course outline, sample evaluation tools, and a planning guide for self-development.

The aforementioned handbook on adaptability culminated close to a decade of research that included the development and validation of a model, assessment instrument, and pilot training course. The pilot training course evaluation indicated that participants viewed the content as relevant to their jobs as Special Forces officers (White et al. 2005). Evaluation of the handbook’s tools is yet to be accomplished. Extensive research leading up to the publishing of the handbook (see paragraphs below) indicates the underlying principles of it are sound.

Mueller-Hanson, White, Dorsey, and Pulakos (2005) state that given the current operational environment, the development of adaptive leaders has become a high priority for the Army. In their review, Mueller-Hanson et al. (2005) identified the different dimensions of adaptability, described the related constructs of adaptable leaders, and discussed these constructs in terms of trainability. Mueller-Hanson et al. (2005) cited Pulakos, Arad, Donovan, and Plamondon (2000) which proposed a model of adaptive performance that is applicable to a broad array of occupations. The dimensions from Pulakos et al. (2000) are listed below. These dimensions are defined and Mueller-Hanson et al. (2005) provided behavioral examples of each dimension related to the military environment:

- Handling emergencies or crisis situations;
- Handling work stress;

- Solving problems creatively;
- Dealing effectively with unpredictable or changing work situations;
- Learning work tasks, technologies, and procedures;
- Demonstrating interpersonal adaptability;
- Displaying cultural adaptability; and
- Demonstrating physical oriented adaptability

Mueller-Hanson et al. (2005) used examples from the literature to identify constructs that are related to adaptability. Mueller-Hanson et al. (2005) then identified the related constructs in terms of trainability by focusing on whether the construct was stable (i.e., trait-based) or malleable (i.e., state based). See Figure 1 for their results.

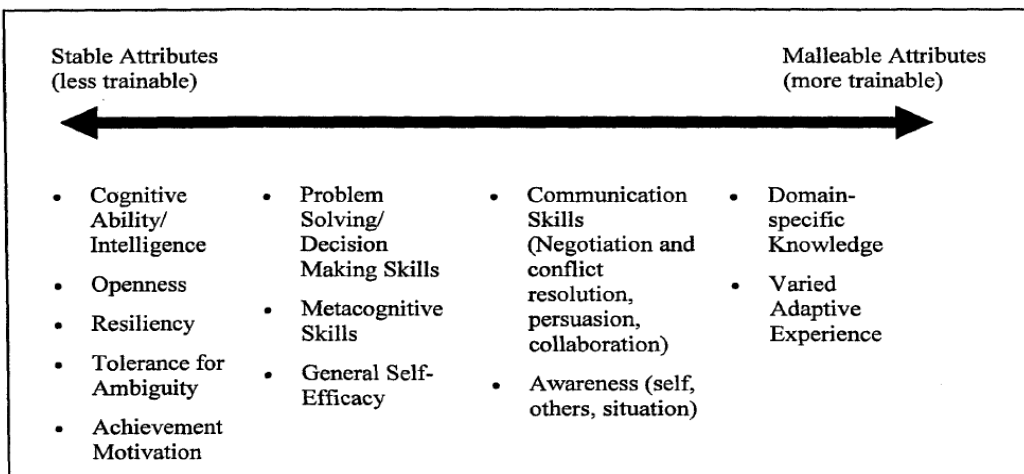


Figure 1. Training continuum.

Lastly, Mueller-Hanson et al. (2005) described how training can be conducted in the military and discussed training recommendations regarding the three training domains: institutional, operational, and self-development. Within each of the training domains they describe at least one example of how adaptability is measured, evaluated, and trained. The specific examples demonstrate the feasibility of adaptability training and the training recommendations regarding each domain provide helpful guidance toward the development of adaptability training.

Pulakos et al. (2002) conducted an empirical investigation of Pulakos, Arad, Donovan, and Plamondon (2000) taxonomy of adaptive performance and the ability of the dimensions to predict job performance. Participants were 739 military personnel. Results showed support for the eight-dimension model of adaptability. The adaptability predictors were shown to predict performance (Pulakos et al., 2002). This study provides validation of the eight-dimension model and demonstrates its ability to effectively measure adaptability and predict performance.

Tucker, Gunther, Pleban, Goodwin, and Vaughn (2007) used the Pulakos, Arad, Donovan, and Plamondon (2000) eight-dimension model of adaptability to identify and define junior Army leader behaviors that are reflective of adaptive performance. In addition to the eight dimensions, the research also included “leads an adaptable team” (White et al., 2005). Tucker et

al. (2007) examined two datasets of critical incident interviews on adaptive performance. The results highlight the frequency which behavioral examples of the dimensions were reported in the critical incidents. The results are summarized in Table 5 below. These results suggest that some dimensions of adaptability may be more difficult for leaders to display or for researchers to assess.

Table 5.

Observation of Adaptive Behavior

Most Frequently Observed	Frequently Observed	Least Frequently Observed
Deals with uncertain and unpredictable work situations	Solves problems creatively	Interpersonal adaptability
Handles emergencies or crisis situations	Learns work tasks, technologies, and procedures	Cultural adaptability
	Handles work stress	Physical adaptability

Situational awareness. Field Manual 3-0 defines situational awareness as, “immediate knowledge of the conditions of the operation, constrained geographically and in time. More simply, it is Soldiers knowing what is currently happening around them. Situational awareness occurs in Soldiers’ minds. It is not a display or the common operational picture; it is the interpretation of displays or the actual observation of a situation” (Department of the Army, 2008, p. 7-11). Field Manual 7-0 emphasizes the importance of situational awareness in stating that situational awareness is a key developmental objective in the self-development training domain. Further, FM 7-0 highlights the necessity for battalion sized and smaller units to leverage simulation and gaming capabilities to train and practice maintaining situational awareness (Department of the Army, 2008).

In an extensive study, Strater, Jones, and Endsley (2001) focused specifically on the training of situational awareness for Infantry forces. Three levels of situational awareness were examined. The levels of situational awareness are described as the outcomes of mental models. In other words, mental models produce the following levels of situational awareness:

- Knowledge of the relevant “elements” of the environment that can be used in directing attention and classifying information in the perception process.
- A means of integrating elements to form an understanding of their meaning.
- A mechanism for projecting future states of the environment based on the current state and an understanding of its dynamics (Endsley, 1995; Strater, Jones, & Endsley, 2001).

This taxonomy seems especially relevant to identifying the aspects of situational awareness in order to assess and create more effective training. Using this taxonomy Strater, Jones, and Endsley (2001) found various significant relationships between situational awareness, experience, and performance.

Strater, Jones, and Endsley (2001) conducted survey research that provided an exhaustive list of shortfalls in all three levels of situational awareness for infantry leaders. Based on their research, Strater, Jones, and Endsley provide several recommendations for training:

- Schema training – One of the most important factors underlying the development of good situational awareness is the presence of mental models and schemata of prototypical situations (Endsley, 1988, 1995) as cited in Strater, Jones, and Endsley (2001).
- Communication Training – Communications problems are identified as a significant issue underlying poor situational awareness in inexperienced platoon leaders.
- Task Management and Prioritization – Better skills in assessing the time requirements and prioritization for different tasks are also needed to enhance situational awareness.
- Contingency Planning – A major strategy for improving situational awareness is to train warfighters in the importance of contingency planning and to provide them with some of the information that should be considered when making contingency plans. Contingency planning is highly related to situational awareness. It is a skill clearly linked to the highest level of situational awareness (Strater, Jones, & Endsley, 2001).

Using a tank simulator, Kass, Herschler, and Companion (1991) demonstrated that they were able to enhance situational awareness and improve performance (as measured by correct pattern recognition and response time) in SIMulation NETwork (SIMNET) M1A1 tank simulations by training only task-relevant cues. One group of Soldiers was trained in a simulator using only task relevant cues that taught skill-based pattern recognition. This group then conducted operations in a simulated battlefield environment. Another group of Soldiers first took a pre-test. They were then allowed to practice in the battlefield environment and to conclude their session, they took the battlefield environment test again. The group that was trained only on task relevant cues in the simulator performed significantly better than the other group on the realistic battlefield test (Kass, Herschler, & Companion, 1991). The study demonstrated that by breaking down the environment to task-relevant cues the Soldiers were able to effectively recognize those cues. That specific training enhanced situational awareness and resulted in improved performance. The training implication for situational awareness is that task-relevant cue recognition is more effective than simply practicing an exercise.

Matthews and Beal (2002) examined the use of two metrics for measuring situational awareness among Infantry Soldiers: The Mission Awareness Rating Scale (MARS) and the Situation Awareness Behavioral Rating Scale (SABARS). Both instruments provided significantly positive results in assessing situational awareness in field settings. Specifically, the MARS instrument indicated that platoon leaders rated their situational awareness higher than squad leaders and that higher order situational awareness was rated as more difficult than lower order situational awareness. The SABARS was a strong predictor of ratings of individual performance and observer-controllers rated it as easy to use and relevant to assessing situational awareness in the field (Matthews & Beal, 2002). These results demonstrate another method for examining situational awareness in training and provide two instruments that are applicable to training situational awareness in the field. Further, the SABARS measure displayed a significant relationship between situational awareness and performance.

The literature provided several additional examples where situational awareness was related to training and performance constructs. Saus et al. (2006) examined situational awareness in a police shooting simulator. Situational awareness was measured subjectively and objectively and performance was measured based on the number of shots fired and the number of hits. Results suggested that individuals who were given situational awareness training were more effective and those with higher situational awareness displayed less mental workload which was measured as suppression of heart rate variability during the execution of the mission (Saus et al., 2006). These results suggest that situational awareness training is effective both in terms of objective skill performance, but also in terms of increasing positive physiological conditions during performance.

Pleban, Tucker, Johnson, Gunther, and Graves (2009) examined the use of a low-fidelity desktop computer simulation to train small unit leader situational awareness and adaptive decision-making skills in infantry junior officers. Results demonstrate a significant relationship between situational awareness and effective, adaptive decision-making (Pleban et al., 2009). These results provide support for a relationship between situational awareness, adaptability, and decision-making.

The relationship between situational awareness and decision-making received further support in the literature. Pleban, Eaken, Salter, and Matthews (2001) conducted research on infantry officers in virtual environment training and found that selected situational awareness measures predicted decision-making. In the same project, Pleban et al. (2001) found that experience played a significant role in situational awareness. These findings provide additional support for the findings in Strater, Jones, & Endsley (2001), which also suggested a relationship between experience and situational awareness.

Mental agility and sound judgment. Field Manual 6-22 states that sound judgment “goes hand in hand with mental agility” (Department of the Army, 2006b, p. 6-2). Consequently, the review of these two constructs is discussed concurrently. To further understand how the two constructs are related, “Judgment requires having a capacity to assess situations or circumstances shrewdly and to draw feasible conclusions” (Department of the Army, 2006b, p. 6-2). And “Mental agility is a flexibility of mind, a tendency to anticipate or adapt to uncertain or changing situations. Agility assists thinking through second- and third-order effects when current decisions or actions are not producing the desired effects” (Department of the Army, 2006b, p. 6-1). Drawing on these two definitions it would seem that mental agility is a necessary prerequisite of sound judgment. This is especially so given the contemporary operational environment of Army Soldiers. And the literature on mental agility also identified it as closely related to adaptability, critical thinking, and sound judgment (Department of the Army, 2006b).

The importance of mental agility to the Army is reflected in the prominence the construct played at a 2009 ARI workshop on human measurement. The workshop consisted of four panels that discussed assessment and training of four different aspects important to Soldier success. One of the subjects discussed was mental agility. To develop a measure of mental agility, panelists suggested building a model based on critical incidents of operational experience. This would be followed by developing measures that assess the critical skills identified in the model. Finally, individuals would be assessed by the measures together with performance outcomes

(Goodwin, Tucker, Dyer, & Randolph, 2009). The panel discussed four objectives in developing an assessment of mental agility. First, develop a model of mental agility that includes an explanation of the relationship between experience, expertise, and mental agility. Second, develop mental agility measures to assess the critical skills identified in the model. The study noted that a good assessment of mental agility will involve a battery of tests. Third, establish a link between the mental agility measures and performance. Finally, after the validation research, ongoing assessments should be tailored for specific career points (Goodwin, et al., 2009). The specific objectives put forth illustrate the need for more information concerning the assessment and training of mental agility. The fact that such a workshop was held, and an examination of the proposed research goals was completed, illustrates the importance that the Army research community places on identifying and developing measures to assess mental agility.

Field Maintenance 6-22 states that good judgment “contributes to an ability to determine possible courses of action and decide what action to take. Like agility, judgment is a critical part of problem solving and decision making” (Department of the Army, 2006b, p. 6-2). There was very little literature that examined the term sound judgment specifically. However, the term sound judgment would by definition be conceptually similar or related to decision-making and problem solving. No clear distinction could be made on how decision-making, problem solving, and sound judgment differ to any great extent. For a comprehensive review and display of theoretical debates involving judgment and decision-making, refer to Connolly, Arkes, and Hammond (2000), Koehler and Harvey (2004), Schneider and Shanteau (2003), and Smith, Shanteau, and Johnson (2004). Beaudoin (2006) suggests that judgment can be developed; providing evidence by examining the life history of famous military generals. Beaudoin asserts that experience is an important process in developing judgment. The correct understanding of the environment of previous decisions, repeated exposure to similar experiences, and appropriate feedback are all linked to improving judgment through experience (Beaudoin, 2006). In an experiment examining tactical decision-making, St. John, Callan, Proctor, and Holste (2000) found that Marines with more Combat Operations Center (COC) experience were unaffected by environmental uncertainty, whereas, Marines with less COC experience were more likely to wait before acting when uncertainty was high. Consequently, experience is an important factor in the exercise of sound judgment toward making decisions quickly in the uncertainty of combat.

A study by Stewart, Angle, Jacobs, and Simutus (1992) on creative problem solving identified factors predictive of unstructured problem solving performance. The four predictors of problem solving capability are the use of mental rotations, intuition and introversion (negative relationship) as measured by the Myers-Briggs Type Indicator (MBTI), and risk taking propensity. While the constructs of intuition, introversion, and risk taking propensity are relatively familiar, mental rotation is less so. Mental rotation is the ability to judge similarity among objects (e.g., shapes) by viewing two or more similar looking objects and mentally rotating them to identify whether or not they are identical.

The literature provides several examples of how problem solving and decision-making can be trained. Stewart et al. (1992) provided two different types of instruction to determine the effectiveness of problem solving training. A group of Soldiers underwent training designed to teach thinking process skills and another group was taught problem solving and to think about information in a content-oriented manner and not process-oriented. Students taking the thinking process training significantly outscored those taught only about problems and errors in human

judgment and decision-making (Stewart et al., 1992). These results provide clear evidence of the type of training that maximizes problem solving skill.

Fitzpatrick (2007) examined two different decision-making methods for training: Close Combat Marines (CCM) Tactical Decision-Making Simulation (TDS) and Tactical Decision-Making Game (TDG). Results indicated that both the TDG and the TDS methods were useful in evaluating a participant's leadership characteristics and decision-making ability. However, only the TDS was capable of evaluating situational-awareness (Fitzpatrick, 2007). This research is important for two reasons. First, the research provides effective adult learning methods for training decision-making. Second, the TDS accurately measured decision-making ability, as well as situational awareness.

Sense-making. In a symposium sponsored by the Command and Control Research Program, it was stated that there exists a need for current and future military forces to conduct a broader and more complex spectrum of operations, as compared with a decade ago. In response to these more demanding requirements, U.S. military forces are employing new, more appropriate operational concepts and command approaches. For example, U.S. military forces are paralleling the information revolution in the commercial sector by adopting network centric warfare concepts (Wentz, 2001). The human side of operations parallel to technological, network centric solutions is the construct of sense-making. Weick (1993), in one of the first investigations on sense-making, identified sense-making as the search for answers to the two questions of "what's the story here?" and "what do I do next?" Ntuen (2006) describes some of the constructs related to the process of sense-making: the ability to reason, recognize patterns, compare facts, differentiate between "what makes sense" and what does not, and make decisions. Ntuen (2006) notes that one or more of these processes may be going on at the same time that sense-making is taking place.

Sieck, Klein, Peluso, Smith, and Harris-Thompson (2007) defined sense-making as the process of fitting data into a frame, and fitting a frame around the data. People will try to make sense of data inputs they receive by finding or constructing a story to account for the data. It is suggested that frames are less complete than a mental model and that constructing a comprehensive mental model for most situations is unrealistic. Sieck et al. (2007) developed and tested a cognitive model of the processes involved in sense-making. The model proposed six key sense-making activities: elaborating, questioning, comparing, preserving, re-framing, and seeking. These activities provide a more theoretically sound set of constructs regarding the process of sense-making. Ntuen (2008) presents an approach to organizing the sense-making process from a military perspective. The approach uses a set of cognitive constructs that translates tacit knowledge to the focal knowing of the objective world. Ntuen (2008) discusses each of the constructs with references to military literature and the current operational environment. The constructs include:

- Situation Framing;
- searching for Cues;
- information Mapping;
- search for Meaning in Information Patterns;
- information Comprehension;
- interpreting Information Relevance to Goals;

- creating a Subset of Situation Understanding; and,
- the Stage of Actionable Knowledge.

Jensen and Brehmer (2005) conducted an empirical investigation of the sense-making process in a command team. The participants were 99 Army captains studying at the Swedish National Defense College. Jensen and Brehmer (2005) devised a method of analyzing video recordings of a training scenario. One coder examined the following sense-making processes and outcomes in the videos:

- Understanding the mission;
- understanding the present situation;
- identifying possible courses of action (COA);
- evaluating suggested COAs;
- the generation of criteria for success;
- the observer estimated the degree of (common) sense arrived at by the team as a whole; and,
- the observer graded the leadership performance of the commander, in terms of hindering or facilitating the team's sense-making process.

The processes above are similar to the Military Decision-Making Process or MDMP. Thus, it is hard to discern which of the steps reflects individual sense-making and rather than merely what captains were trained and socialized to do as Army leaders. Notably absent from this study is a theoretical underpinning like that found in Sieck et al. 2007.

There is little research on sense-making's relationship to other psychological constructs or performance outcomes. One exception is a research effort to identify effective leadership behavior in Counterinsurgency (COIN) operations. The research concluded that sense-making, leader tone-setting, and establishing an ethical climate were all interrelated and instrumental in effective leadership in COIN (Aude et al., 2008). This research, however, employed existing data comparisons rather than more rigorous statistical analyses. Burnett, Wooding, and Prekop (2004) stated that the relationship between sense-making and decision-making for military operations is illustrated with respect to two decision-making doctrines: Observer, Orient, Decide, and Act (OODA) (Boyd, 1987; Department of the Army, 2003, A-1) and Critique-Explore-Compare-Adapt (CECA) (Bryant, 2004). The researchers discuss the theoretical concepts in sense-making as they relate to OODA and CECA. Here again a research limitation is that the analysis is descriptive rather than statistical. Even so, the descriptive analysis indicated that (1) sense-making is related to decision-making and (2) sense-making can be incorporated into military doctrine to improve leader training and effectiveness.

Summary. The construct of adaptability is amply conceptualized, researched and has been applied to training for U.S. Army Special Forces. Importantly, the eight dimensions associated with adaptability are predictive of performance and training outcomes. And a recent 2009 handbook purports to extend its application to military units in general. Consequently, Soldier mission readiness training ought to strongly consider including adaptability training. The research, measurement, and training applications of situational awareness also warrant consideration. Important here is that to train situational awareness, a variety of subordinate skills are involved (e.g., schema and mental model development). The same can be said for the

constructs of mental agility and sound judgment. Practice in decision-making and problem solving were recommended. Yet a synthesis of the research indicates factors such as intuition and risk taking capacity (developed over time via experience) are key contributors. Applications of mental agility and sound judgment to Soldier mission readiness training are also limited by a lack of validated measures. And the military applications of adaptability, mental agility, and sound judgment were predominantly developed with officers in mind. This may require considerable adaptation of the applications to be appropriate for the BCT Soldier population (assumed to include junior enlisted Soldiers, NCOs, and officers).

The Army, theorists (e.g., Weick, 1993) and researchers recognize the importance that there is not a solid understanding or unanimity concerning how sense-making is assessed or trained. The cognitive nature of this construct has resulted in a variety of different suppositions concerning how sense-making works, what it is related to, and how it is assessed. The one constant is that researchers recognize the importance of sense-making and recommend more research and the development of training. The content of Ntuen's (2006; 2008) cognitive constructs possess intuitive face validity.

Values, principles, standards, and qualities

The meta-construct of values, principles, standards, and qualities is broad and encompassing. Yet the converging theme across the many constructs may be thought of as being true to one's own values and to the Army's values. Pervading these values is a person's moral ethical judgment, personal courage, and empathy for humankind. Such values appear to encompass a personal and professional ethos that serve as a foundation for the Army's warrior ethos (designed to serve as an ethos for the Soldier's role in life threatening situations).

Fifteen constructs were reviewed within the values, principles, standards, and qualities meta-construct (listed below this paragraph). Integrity, empathy, personal courage, and moral ethical judgment had six or more research articles per construct. The constructs of humility, pride, and patriotism yielded five or fewer research articles. Several of the constructs provide three or fewer peer-reviewed journal articles or technical reports (duty, accountability, honor, discipline, selfless service, respect, loyalty, and authenticity). For the most part, constructs with five or fewer articles did not possess a sufficient combination of conceptualization, validation, measurement, and demonstrated effectiveness to be considered for the present research. This does not mean that the constructs are not important. The Army trains and inculcates Soldiers on many of these constructs as they have been espoused by the Army since its inception. The scientific, evidence-based approach of the present research, however, will limit itself to moral integrity, empathy, personal courage, and moral ethical judgment.

- | | | | |
|--------------------------|----------------|--------------------|------------------|
| • Integrity | • Humility | • Loyalty | • Honor |
| • Empathy | • Pride | • Respect | • Accountability |
| • Personal courage | • Patriotism | • Selfless service | • Duty |
| • Moral ethical judgment | • Authenticity | • Discipline | |

Moral ethical judgment. Field Manual 6-22 states being an ethical leader “requires more than knowing Army's values. Leaders must be able to apply them to find moral solutions

to diverse problems. Ethical reasoning occurs both as an informal process natural to thinking and as an integral part of the formal Army problem solving model” (Department of the Army, 2006b, p. 4-15). Doctrine identifies the difficulty of making ethical and moral judgments which is also found in technical reports and journal articles. “Ethical reasoning is very complex in practice. The process to resolve ethical dilemmas involves critical thinking based on the Army values. No formula will work every time. By embracing the Army values to govern personal actions, understanding regulations and orders, learning from experiences, and applying multiple perspectives of ethics, leaders will be prepared” (Department of the Army, 2006b, p. 4-15).

Doctrine correctly highlights the importance of knowing the Army values as well as ethical reasoning in making ethical judgments. Reynolds and Ceranic (2007) examined 500 students and managers finding moral identity and moral judgments both independently influenced moral behavior. When social consensus regarding the moral behavior was not high, moral judgments and moral identity interacted to shape moral behavior (Reynolds & Ceranic, 2007). In other words, when the correct moral behavior was unclear, an individual’s moral identity was the source of their behavior. It should follow then that if a Soldier’s moral identity is strongly shaped by Army values (via the Army’s socialization and training processes) their moral judgments and behavior will be guided by Army values rather than their personal moral identity.

Moral and ethical reasoning is extremely important in a military context. The literature provides several research-based examples in a military setting that examine the process of moral and ethical judgments. Studies address the effectiveness of moral and ethical judgment training. Blais and Thompson (2008) examined a sample of students, but used senior Canadian Forces Commanders to construct a military moral dilemma and two possible response options. Trials of each response option showed that neither was favored over the other, representing a true dilemma. Study results show that the differences in how participants viewed each option and the determinant of which option they chose are significantly related to moral intensity (Blais & Thompson, 2008). Moral intensity is comprised of six factors: magnitude of consequences, probability of effect, proximity, temporal immediacy, social consensus, and concentration of effect. Thus, this research revealed some of the contributing factors to an individual’s moral/ethical judgment.

The development and application of ethical moral reasoning is also important to the military. Luedtke (1999) found that Air Force cadets increased their usage of principled moral reasoning during attendance at the United States Air Force Academy. The study occurred over a four year training and education period. It demonstrated that the cadet development process (and by inference the training it provides) had a positive impact on participant moral judgment. The true effectiveness of ethics instruction has been a question of scholars for some time. Accordingly, a meta-analysis of ethics instruction effectiveness was recently conducted (Devenport et al., 2009). The quantitative study consisted of 26 previous evaluations of ethics programs of instruction. Results showed that the overall effectiveness of ethics instruction was modest. Characteristics of the more successful programs of instruction were identified as: seminar format (apart from regular curriculum), case based and interactive, and allowed participants to learn and practice the application of real world ethical decision-making skills (Mumford, et al., 2008). A recent publication by Uthe-Burow (2010) titled, *Raising Moral Development: An Ethical Training Model* provides both a model and test for use in measuring

training effectiveness. The *Defining Issues Test* (DIT) is modeled after Kohlberg's stages of moral development. The test purports to provide evidence of moral development training effectiveness. While research and practice of moral ethical training indicates some ability to develop moral and ethical reasoning, the examples are with other than military populations and executed in non-field settings. While seminar and classroom environments may serve as a starting point for BCT training on this construct, integrating it into operational field training exercises will better ensure that transfer of training will occur.

Thomson and Adams (2006) explored moral and ethical judgment and decision-making in an operational context. As part of pre-deployment training at a specific Canadian Forces base, military personnel participated in several realistic training exercises. One of the exercises involved a situation that simulated a human rights violation. The results demonstrated a relationship between the level of trainee moral intensity and trainee behavior in the scenario. Those who displayed higher levels of moral intensity more frequently behaved morally and attempted to gain situational awareness (in comparison to trainees in the baseline condition of moral intensity). Trainees who acted with more morality reported higher levels of satisfaction with their performance and the outcome (Thomson & Adams, 2006). The relationship reported between Soldiers' heightened level of moral intensity and a desire for greater situational awareness suggests that morally intense Soldiers lend greater importance to ethical and moral judgments. As a consequence, they seek out additional information to increase their awareness and make a better decision. The part that moral intensity plays in moral ethical decision-making, and whether it is innate, achieved through social learning, or subject to change through training, is a subject that warrants further research.

Empathy. Empathy is the ability to understand and share the emotions of another person. Field Manual 6-22 identifies empathy as one of the three major factors that determine leader character (in addition to Army values and warrior ethos). Field Manual 6-22 provides detail concerning the role of empathy in Army leader behavior. "Army leaders show a propensity to share experiences with the members of their organization. When planning and making decision, they try to envision the impact it will have on Soldiers and other subordinates. The ability to see something from another person's point of view, to identify with and enter into another person's feelings and emotions, enables the Army leader to better care for civilians, Soldiers, and their families" (Department of the Army, 2006b, p. 4-9). Field Manual 6-22 states that empathetic leaders take care of their Soldiers by giving them the training, equipment, and support they need. Further, empathy is cited as an important factor in being an effective counselor (Department of the Army, 2006b). The FM 6-22 doctrine is helpful in expanding on the general definition of empathy and identifying the ways that empathy can be used to increase leader effectiveness.

Polymilis (2010) found that empathy plays a vital and effective role in leading as long as it ensures communication and generates mutual trust between the leader and the follower. The creation of mutual trust, discussed in Polymilis (2010), is likely a reason why empathy is an important factor in counseling. Polymilis (2010) demonstrated by coding a case study that empathy was related to several leadership styles: transformational leadership, servant leadership, spiritual leadership, and value based leadership. Conway (2000) examined managerial performance development constructs among 2,110 managers and found that interpersonal effectiveness was significantly correlated with empathy. The evidence for the involvement of

empathy in various effective leadership styles along with the observed relationship between empathy and interpersonal effectiveness would suggest that empathy plays an important role in leading others.

Practitioners suggest that empathy is a key component of effective COIN operations (Ransone, 2008). In COIN, empathy is developed through the combination of both situational and cultural understanding (Ransone, 2008). The development of empathy for the local populace in COIN serves as an effective weapon against insurgents (Ransone, 2008). These findings concerning the importance of empathy in fighting a counterinsurgency are also discussed in FM 6-22. “The requirement for leader empathy extends beyond civilians, Soldiers, and their families. Within the larger operational environment, leader empathy may be helpful when dealing with local populations and prisoners of war. For example, recognizing and meeting the essential life needs of people in desperate circumstances can transform a hostile populace into one of cooperation (Department of the Army, 2006b, p. 4-10). And given the stress associated with lengthy deployments and an ambiguous operational environment, Army leaders and Soldiers need to be able to express empathy toward one another as well. Expressing too much empathy and too often, however, could be counterproductive to mission accomplishment and Soldier well-being. Appropriate expressions and acts that communicate empathy, however, remain an important mission readiness criterion for Army leaders and Soldiers.

Empathy has been most often studied in professions where it is a core competency. Those in the helping professions, counselors, medical doctors and personnel, elementary school teachers, and the like have most often been the focus of research to measure develop and train individuals on empathy. A study of military medical officers reported correlations between empathy and personality traits (Roopa & Joseph, 2007). It also found a negative correlation between empathy and education level. After evaluating several instruments that purported to measure empathy in the general population, the study selected Jefferson’s Scale of Physician Empathy (JSPE) (Hojat & Mangione, 2001). The study recommended empathy as a selection factor for medical doctors as well as to provide training for individuals who stay longer in the organization and gain greater experience.

In an experimental design, participants were randomly assigned to treatment groups and examined using a pretest, posttest, and follow-up to evaluate the impact of patient interview and empathy training on Israeli medical students and their tutors (Kramer, Ber & Moore, 1989). Training was extensive, involving ten 90-minute sessions held twice weekly for five weeks. Case studies were provided by and role played by participants. Feedback was then given and alternative responses practiced. Evaluation results showed that students and tutors receiving the training showed significant, lasting increases in supportive behavior. Students who did not participate in the training and students whose tutor did not take the training showed no change in supportive behavior over time. In conclusion, the research on empathy indicates that it is somewhat trait based and would require an additional training intervention that would be difficult to integrate into existing training and taskings. This poses challenges for a BCT which must attempt to integrate the Soldiers and leaders the Army assigns to it into a cohesive unit, and has more training requirements than time available.

Personal courage. Personal courage is defined as the ability to, “face fear, danger, or adversity (physical and moral). “Physical courage requires overcoming fears of bodily harm and

doing one's duty" (Department of the Army, 2006b, p. 4-8). "Moral courage is the willingness to stand firm on values, principles, and convictions" (Department of the Army, 2006b, p. 4-9). Field Manual 6-22 links courage to several effective leader behaviors and constructs. For instance, moral courage is expressed as candor and the ability to communicate candidly. Other literature expresses the importance of courage in communication. Wilson and Johnson (2001), for example, proposed that courage is an essential factor in effective mentoring. And some make links between courage and projecting confidence and displaying the Army values. For example, it takes courage to espouse a learning environment with strategic leaders who are willing to experiment and innovate to create a better Army (Department of the Army, 2006b). Thus, Army doctrine recognizes and describes courage in many different ways.

Woodard and Pury (2007) investigated courage and found that fear may not be a necessary part of courageous action. And, not unlike FM 6-22, discussed the different facets of courage. The four factors of courage in Woodard and Pury (2007) were work/employment, a patriotic/religion based belief system, specific social-moral courage, and independent or family based courage. Woodard and Pury's (2007) use of factor analysis to identify the four factors of courage lends considerable credibility to them. In two additional studies Rachman (1991) and Rachman (1995) examined the nature of courageous performance along with ways in which it can be promoted. His objective was to develop methods for predicting courageous performance. Most of Rachman's research used a sample of military bomb-disposal operators. Various measures were used to assess participants' behavior, subjective reactions, and physiological responses (Rachman, 1991). Physiological differences in self-reported anxiety were present between decorated operators and non-decorated operators, with decorated operators demonstrating less anxiety. However, non-decorated operators reported less stress than civilian control participants. Interestingly, participation in skills based technical training in bomb-disposal differentiated those who performed courageously in accomplishing bomb disposal tasks. Rachman (1991) also suggests that, in addition to courage, cohesive small group cooperation and personal resilience were important factors in determining performance. For the present report, an important implication is that to promote courage in BCT Soldiers, focusing training on job enabling skills, rather than trying to 'teach' courage, will be more effective.

Integrity. Integrity is defined as the ability to, "do what's right—legally and morally" (Department of the Army, 2006b, p. 4-7). Field Manual 6-22 states that, "leaders of integrity consistently act according to clear principles, not just what works now" (Department of the Army, 2006b, p. 4-7). Further, "leaders cannot hide what they do, but must carefully decide how to act" (Department of the Army, 2006b, p. 4-8). The majority of the literature on integrity concerns employee selection. For instance, Arthur and Bennett (1996) examined 338 international assignees from diverse countries and organizations, assigned to diverse countries, and performing diverse jobs. Integrity was found to be a predictor of success in international assignments. The sample did not include military personnel, although the researchers suggest that the findings are generalizable to deploying military personnel.

Iddekinge, Taylor, and Eidson (2005) added to the conceptualization of integrity by examining eight facets of the construct. Their aim was to determine whether or not specific facets were more effective than a broad measure of integrity at predicting supervisor ratings of job performance. A structured job analysis was performed to create job dimensions and knowledge, skills, abilities, and other characteristics (KSAO). Domains of job performance

included overall performance, performance on nine critical job dimensions, and 15 KSAOs. Two facets, honesty image and norms of general dishonesty, had a stronger relationship with supervisor ratings of job performance than did the broad integrity scale. Additionally, the correlation coefficient was about three times larger than the validity coefficient of the broad scale (Iddekinge, Taylor, & Eidson, 2005). The two facets that were effective in predicting supervisor ratings of job performance were honesty image (e.g., perceptions of one's own integrity), and norms of general dishonesty (beliefs about the frequency with which people engage in general dishonest behaviors). The success of these two factors in predicting supervisor ratings of job performance points to their usefulness in accurately assessing integrity.

There were two meta-analyses that were found in the review of the literature. Ones, Viswesvaran, and Schmidt (1993) examined 665 validity coefficients across 576,460 data points. Results indicated that integrity test validities are substantial for predicting job performance across various jobs and counterproductive behaviors on the job, such as theft, disciplinary problems, and absenteeism, such that as integrity increases, counterproductive behaviors decrease (Ones, Viswesvaran, & Schmidt, 1993). The second meta-analysis focused on the ability of integrity tests to predict absenteeism (Ones, Viswesvaran, & Schmidt, 2003). Twenty-eight studies based on a total sample of 13,972 were meta-analyzed. Higher levels of integrity predicted less absenteeism. The researchers went a step further by distinguishing between overt integrity tests (direct measure of integrity) and personality-based integrity tests (indirect measure of integrity). Notably, the predictive validity was much higher for personality-based integrity assessments, (e.g., selection assessments or The Big Five) than it was for overt integrity tests, (e.g., situational judgment tests SJT).

Although there is considerable research on the conceptualization of integrity, most scholarly articles use or employ the word “ethics” to describe training to develop or improve personal integrity. Thus, the research and conclusions previously described in the section titled moral ethical judgment are applicable to integrity as well.

Summary. The research on the constructs reviewed within the values, principles, standards, and a qualities meta-construct poses a significant challenge for their integration into BCT Soldier mission readiness training. First, the evidence points to these constructs being somewhat fixed, trait-based, and difficult to change or improve. And the characteristics of successful training require considerable time, skilled facilitation, and implementation resources. Thus, while these are important constructs to Soldier mission readiness, considerable thought must be given as to if and how to integrate them into an already demanding BCT training schedule.

Personal drive

The meta-construct personal drive encompasses constructs that influence and compel individuals to take and sustain action (motivation and will) and take actions that require a degree of risk taking and creativity (initiative and innovation).

Initiative. The Army defines initiative as “the willingness to act in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise” (Department of the Army, 2006a, p. 4-5). Field Manual 3-0 (Department of the Army,

2006a) identifies individual initiative as a crucial component in seizing, retaining, and exploiting the initiative in Army operations. It also suggests that high quality Army leaders and Soldiers can best reach their potential by being given opportunities to exercise initiative. The Army's FM 7-0 (2006c) directs leaders to train their subordinates without stifling their initiative, and to use their own initiative when developing training. Field Manual 6-22 (Department of the Army, 2006b) suggests that part of a leader's duty is to exercise initiative. In other words, leaders should "anticipate what needs to be done before being told what to do" (p. 4-5). Personal initiative has been defined as "a behavior syndrome resulting in an individual's taking an active and self-starting approach to work and going beyond what is formally required in a given job" (p. 140). More specifically, personal initiative is characterized by the following aspects: 1) it is consistent with the organization's mission, 2) it has a long term focus, 3) it is goal directed and action oriented, 4) it is persistent in the face of barriers and setbacks, and 5) it is self starting and proactive" (Frese, Fay, Hilburger, Leng, & Tag, 1997, p. 140).

Both Army doctrine and current research discuss the importance of an environment that is conducive to initiative. The Army's current training doctrine encourages leaders to develop initiative through a climate of trust and mutual understanding and to foster initiative in their subordinates. Doctrine recommends training that consists of challenging, complex, ambiguous, and uncomfortable situations where Soldiers are allowed to think through and react to unexpected and difficult situations (Department of the Army, 2006c) and where initiative is rewarded and honest mistakes are allowed (Department of the Army, 2006c).

Initiative research, while primarily focused on the business sector, generally supports the Army's emphasis on a supportive climate. Fay and Frese (2001) conducted a series of studies where they examined different relationships between personal initiative and other relevant constructs. One such area of exploration is the relationship between personal initiative and a responsive environment consisting of control at work, complexity at work, stressors, and support for personal initiative (direct supervisors, top management). Hierarchical regressions demonstrated positive for these relationships except for the direct supervisor which did not affect personal initiative (Fay & Frese, 2001). The implication is that the work environment and senior management have an important role in fostering initiative.

A United States Army Command and General Staff College (CGSC) research report on initiative-oriented training also provided support for the Army's method of developing personal initiative (Larsen, 1998). Results show that using mission orders during Situational Training Exercises (STX), changing conditions between iterations, providing an aggressive Opposing Force (OPFOR) with increased latitude, and Multiple Integrated Laser Engagement System (MILES) free-play exercises were positively correlated with a Soldier's disciplined initiative. Disciplined initiative was defined as initiative demonstrated in accordance with the commander's intent (Larsen, 1998). The author suggested that repetition of these variables (e.g., mission orders during STX) in training would increase initiative (Larsen, 1998).

Will. Will is defined as the "inner drive that compels [Soldiers] to keep going, even when exhausted, hungry, afraid, cold, and wet" (Department of the Army, 2006b, p. 5-3). Will is an integral, though indirect, component of the Soldier skill set. While no longer literally named as a key attribute in the Army's leadership requirements model, will continues to be cited and referred to as important (Department of the Army, 1999; Department of the Army, 2006b).

For example, FM 6-22 suggests that a Soldier's will, in conjunction with self-discipline and confidence, helps him or her do what is right; even when it might be difficult to act or easier to do nothing. It discusses will as the construct that propels Soldiers forward in the face of setbacks, shock, injuries, adversity, and stress; allowing them to maintain their mission and organizational focus in spite of hardship.

Doctrine endorses the idea that commitment to beliefs such as warrior ethos, Army values, justice, liberty, freedom, and motivation are helpful in developing a Soldier's will (Department of the Army, 2006b). It also suggests that leaders give subordinates complex tasks to gradually develop the will necessary to take on more difficult tasks (Department of the Army, 2006b). Studies on will are not prevalent. The construct of self-regulation possesses some convergence with the content domain of will. Self-regulation is defined as the "capacity to enact control over one's behavior" (Oaten & Cheng, 2006b, p. 717). One study took a group of 69 college students and had them each do one of three different self-control exercises over a two week period. The exercises included monitoring and improving posture, regulating mood, and monitoring and recording eating. Results showed an increase in participant self-regulatory capacity after doing the self-control exercises (Muraven, Baumeister, & Tice, 1999). Other studies looked at the effects of interventions such as study and exercise programs on self-regulatory capacity. Results showed an increase in participant's self-regulatory capacity on a self-regulation exercise and in other areas of their lives such as improved dietary habits, decreased stress levels, decreased chemical consumption, and increased emotional control (Oaten & Cheng, 2006a; Oaten & Cheng, 2006b). However, some of the research indicates that the amount of self-regulation a person has is limited and can be depleted. This characteristic of self-regulation seems similar to a person's capacity for will. Research recommendations include providing ways of strengthening self-regulation through practice as well as restoring depleted self-regulation through sleep (Baumeister, 2003) or laughter (Tice, Baumeister, Shmuel, & Muraven, 2007). If as surmised self-regulation improves the expression of will, then Soldiers and leaders need to be trained on being cognizant of when it is depleted and how to restore it.

Motivation. The importance of motivation is clearly articulated in the Army's current leadership doctrine. Field Manual 6-22 (Department of the Army, 2006b) identifies motivation as the energizing force behind mission accomplishment. It is what supplies a Soldier with the desire to sacrifice and persevere against obstacles; to do what needs to be done (Department of the Army, 2006a, 2006b). In addition, it is seen as the mechanism that drives initiative (Department of the Army, 2006b). Army doctrine defines motivation as "the reason for doing something or the level of enthusiasm for doing it. It comes from an inner desire to put forth effort into meeting a need, but is affected by others' actions and words" (Department of the Army, 2006b, p. 7-7). The Army's definition is fairly consistent with commonly agreed upon sources of motivation in the literature (e.g., Prat-Sala & Redford, 2010; Trembley, Blanchard, Taylor, Pelletier, & Villeneuve, 2009; Ryan & Deci, 2000). Namely, the motivation to accomplish a task can come from a source internal to the individual (i.e., an inner desire; satisfaction in a job well done) or an external source (i.e., receipt of a reward or promotion). In the literature, these two sources are manifest in the self-determination theory of motivation which terms the two sources of motivation as intrinsic and extrinsic. Intrinsic motivation is defined as "doing an activity for the inherent satisfaction of the activity itself" (Ryan & Deci, 2000). Extrinsic motivation, on the other hand, is "the performance of an activity in order to attain some separable outcome" (Ryan & Deci, 2000).

The Army's current leadership doctrine suggests that a leader can improve a Soldier's motivation in one of two ways. Leaders can influence the individuals themselves (e.g., via skill development; inspirational vision) or they can influence the environment in which the Soldiers operate (e.g., a command climate that employs positive reinforcement and empowerment). In the literature, verbal praise (Cameron & Pierce, 1994), along with autonomy and competence (Patall, Cooper, & Robinson, 2008; Ryan, 1982) are associated with increased intrinsic motivation. Intrinsic motivation also appears to be influenced by goal type. Rawsthorne and Elliot (1999) found that performance-avoidance goals, or goals focused on the avoidance of some negative outcome (e.g., not failing a class) tended to have a detrimental effect on intrinsic motivation. This was due to the evaluative pressures and high anxiety typically associated with these types of goals. On the other hand, mastery goals, or goals that focused on the development of competence and task mastery, tended to increase intrinsic motivation. Therefore, intrinsic motivation could potentially be increased by carefully creating environments in which individuals are given goals for increasing personal mastery, provided autonomy and choice, and in which individuals are praised for their accomplishments.

According to self-determination theory, extrinsic motivation is on a continuum with amotivation (lacking the intent to act) on the one end and autonomous extrinsic motivation (acting based on importance to self) on the other. Autonomous extrinsic motivation has been shown to have several positive outcomes such as greater engagement in school, better performance in school, less dropping out, higher quality learning, and greater psychological well-being (Ryan & Deci, 2000). Under this type of extrinsic motivation, individuals choose to engage in a behavior because they see it as an important part of their self identity (Ryan & Deci, 2000). For example, a Soldier might take an on-line correspondence course in order to further refine their Soldiering skills because their identity as a Soldier is part of who they are; they value being competent as a Soldier. Research has shown that providing a meaningful rationale, acknowledging conflicting feelings, and conveying choice leads to increases in this type of motivation (Deci, Eghrari, Patrick, & Leone, 1994). Like intrinsic motivation, autonomy has also been shown to increase this type of motivation (Grolnick & Ryan, 1989; William & Deci, 1996). Therefore, the literature suggests that autonomous extrinsic motivation could potentially be increased by providing an environment that supports autonomy and choice, and also by providing rationale explanations for assigned tasks.

In addition to self-determinant theory, the theory and research on how and why people are motivated is so extensive that only a partial list can be cited here. Maslow's hierarchy of needs, expectancy theory, equity theory, path-goal leadership theory, Hackman and Oldham's Job Characteristics theory, to name a few, all provide legitimate explanations of motivation. Meeting people's basic needs, enabling them to perform, a realistic chance to obtain valued rewards, removing obstacles to performance, fairness across people in work and rewards, and the characteristic of the job are a few of the key factors that determine a person's level of motivation. And although an individual may have a high degree of self-efficacy and internal desire to perform, motivational theories place considerable responsibility on organizational leadership for setting the conditions for and taking action to motivate individuals within their span of control. Consequently, BCT leaders would be a primary target audience for training on how to motivate Soldiers. Such training could be conducted in officer and NCO professional development sessions. Consistent with effective learning principles, the training would be scenario and case

based, employing real examples and leader role plays to maximize the transfer of leader motivational skills to the work environment. Senior leader role modeling of effective methods of motivating Soldiers is also a powerful and important way for a BCT to teach its leaders motivational techniques.

Innovation. The importance of innovation is clearly articulated in the Army's current doctrine. Field Manual 1 (Department of the Army, 2005) identifies the need for Army leaders to foster a culture of innovation. It directs leaders to think creatively, challenge inflexibility, and to take calculated risks (Department of the Army, 2005). Field Manual 7-0 (Department of the Army, 2008) suggests leaders should avoid stifling their subordinates' innovation during training. Instead, leaders should look for ways of boosting their subordinates' innovation by developing and incorporating forward-looking approaches and ideas (Department of the Army, 2006b). The Army defines innovation as the "ability to introduce something new for the first time when needed or an opportunity exists (Department of the Army, 2006b). This is consistent with how the literature conceptualizes innovative behaviors. Innovative behaviors are defined as "an employee's intentional introduction or application of new ideas, products, processes, and procedures to his or her work role, work unit, or organization" (Yuan & Woodman, 2010).

The Army's current training doctrine suggests that innovation can be strengthened through the use of creative training conditions where subordinates are required to be innovative when overcoming challenges (Department of the Army, 2006c). Research on innovative behaviors has looked at a variety of different antecedents. Scott and Bruce (1994) showed a significant relationship between innovation, managerial role expectations, career stage, and systematic problem-solving style, and found that a perceived climate of innovation mediated the relationship between leader-member exchange and innovative behavior. Oldham and Cummings (1996) found that a cross-section of employees at two manufacturing facilities that produced component parts for technical equipment were most creative (i.e., innovative) when they scored high on a creative personality scale and had a supportive supervisor. The creative personality scale was a self-report measure that consisted of 30 adjectives. Employees were asked to place a check next to each adjective that best described them. Furthermore, Janssen and Van Yperen (2004) found that leader-member exchange mediated the relationship between employees with mastery goal orientations and innovative performance. However, this was not the case for employees with performance goal orientations, which had a negative relationship with innovative performance. And finally, Yuan and Woodman (2010) showed that performance, supervisory relationship quality, innovativeness as a job requirement, and dissatisfaction with the status quo were positively related to innovative behaviors. Overall, results from the literature suggest that innovation can be increased, particularly among those already inclined toward creativity, by providing a climate of innovation along with supervisor support.

Summary. Initiative, will, motivation, and innovation to some degree appear to be partially a function of the individual while strongly influenced by the organizational environment and its leadership. The naming of the meta-construct of which they are each a part communicates this aspect of their content domain. The personal in personal drive connotes that each Soldier possesses some degree of initiative, will, motivation and innovation as part of who they are and their prior life experiences. At the same time a Soldier's drive, be it manifest as initiative, will, motivation, or innovation is subject to highs and lows which are influenced by the example and practices of their leaders and how reinforcing the unit's climate is for initiative and

innovation especially. Training applications within the BCT need to focus leaders on how to detect changes in individual Soldier and unit personal drive constructs. Techniques to not only maintain, but help restore a Soldier or unit of Soldiers whose personal drive has been depleted are also needed. Here, individual Soldier techniques taught in Army resiliency training may be applicable to the restoration of initiative, will, motivation, and innovation.

Literature Review Summary

The word intangible aptly, if not accurately, captures the nature of the psychological constructs of this literature review. The boundaries of the constructs are difficult to define, with the content of one often overlapping with another. In spite of this limitation, there is sufficient scientific evidence and/or importance ascribed by the Army itself to a number of the constructs. Valid measures, too, exist for a number of the constructs. And research that sought to train or develop individual skill or ability in the construct often resulted in demonstrated improvements in performance (e.g., job performance, training performance). Thus, the literature review displayed the importance the Army has ascribed to better preparing Soldiers psychologically for their unit missions. Table 6 displays the amount of literature and research concerning each of the intangibles.

Table 6.

Prioritization of Intangible Constructs Based on the Literature Review and Research on Training Effectiveness

Extensive literature and research on effectiveness	Some literature and research on effectiveness	Little or no literature and research on effectiveness
Self-confidence	Personal courage	Integrity
Self-efficacy	Sound judgment/mental agility	Empathy
Self-awareness	Warrior ethos/spirit	Sense-making
Moral-ethical judgment	Grit	Humility
Situational awareness	Innovation	Loyalty
Adaptability	Initiative	Honor
Resiliency/hardiness	Will	Pride
		Respect
		Accountability
		Patriotism
		Selfless service
		Duty
		Authenticity
		Discipline

The literature review, however, also identifies key challenges to the integration and implementation of training on intangible constructs. For one, the scientific evidence for some constructs is extensive, while for others it is considerably less. And the content overlap across constructs means that some consolidation or reduced set of psychological behavioral statements, rather than titled constructs, may be needed to reduce the likelihood of redundant training interventions. Additionally, most construct measures are not designed for use in an Army field environment (e.g., via brief observational checklists, etc.). Rather, the measures are lengthy tests or surveys that will necessarily require adaptation before they can be used by BCT leaders and training support personnel. Much of the cited training for intangible or psychological constructs is also in the form of instructor led training that is designed for a classroom environment. Yet much Army BCT training is conducted in a field environment whereby the unit is practicing unit missions under as close to live or real conditions as can be replicated. That is not to say that classroom sessions do not have their place in BCT mission preparatory training. Only that a considerable investment is needed in skilled facilitators and application oriented learning to ensure classroom instruction transfers to the field environment.

Overview of Data Collection

To further refine the list of intangible constructs identified during the literature review, quantitative and qualitative data were collected from BCT leaders and Soldiers. The following research questions were examined in Phase 1.

Research Questions:

1. What intangibles do BCT leaders and Soldiers deem critical to Soldier mission readiness?
2. What are the intangibles that are already being trained and the strengths of that training?
3. Is training on intangibles achieved by the training of tangibles (tactical and technical training)? If so, what tangible training best develops intangible constructs?
4. What are the best examples or experiences that mentally/psychologically prepare Soldiers for mission readiness?
5. What are the training gaps and immediacy of the need for intangible constructs?

Method

Sample

Data collection occurred at Ft. Hood with Soldiers who were preparing for deployment. Data collection sessions consisted of five focus groups and 16 interviews, resulting in a total sample size of 56 Soldiers. The sample was selected to provide representation from various rank levels with backgrounds in training (i.e., design, planning, execution, and experience with training).

Table 7 displays the breakdown of Soldiers by their rank cohort. Interviews were conducted to obtain responses from brigade and battalion operations officer (S3) and other training personnel who were familiar with the design, planning, and execution of training. A focus group method was used to collect data from those who execute training, such as company

commanders and first sergeants. Focus groups were also the method for obtaining the perspective of those who experience or receive training such as the enlisted rank cohort.

Table 7.

<i>Sample Size of Interviews and Focus Groups by Rank Cohort</i>	
Rank Cohort	Sample Size
Field grade officers	11
Company grade officers	7
Sr NCOs	15
Jr NCOs	5
Enlisted	18

Procedures

The interview and focus group sessions followed similar procedures. Interviews were allotted 60 minutes for completion and focus groups were allotted 90 minutes. All Soldiers were first given a Privacy Act Statement and Informed Consent Statement before the session. Across all sessions, no one opted to not participate in the data collection. Next, Soldiers filled out a questionnaire (Appendix B). The questionnaire consisted of a list of behavioral statements. Each behavioral statement represented some part of the content domain of intangible constructs identified by the literature review. See Appendix C for the linkage between each behavioral statement and intangible construct. Due to the conceptual overlap across intangible constructs, some of the behavioral statements represented the content domain of more than one intangible construct. Soldiers rated each behavioral statement for criticality to readiness, effectiveness of current training, need for new or an improvement in existing training, and frequency of training needed.

Scaled response options for each rated criterion are listed in Table 8. Not reflected is that the “Effectiveness of Current Training” and “Frequency of Needed Training” response options provided “no training available” and “no training needed” response options respectively. These response options were labeled as missing in the dataset so as to not skew analyses e.g., mean ratings.

Table 8.

<i>Criteria and Response Options</i>	
Criteria	Response Options
Criticality to Readiness	1= Not at all Critical - 5= Very Critical
Effectiveness of Current Training	1= Very Ineffective - 5= Very Effective
Need for New/Improvement in Existing Training	1= Very Low Need - 5= Very High Need
Frequency of Training Needed	1= Very Infrequent - 5= Very Frequent

After Soldiers completed the questionnaire, they were asked a series of open ended questions. The initial part of the question protocol asked Soldiers to elaborate on their ratings of intangibles on the aforementioned questionnaire. The latter part of the protocol inquired about the broader set of research questions. See Appendix D for a complete list of all questions and probes employed during interview and focus group sessions. Sessions were either recorded manually or digitally. Complete transcripts were created for all interview and focus group sessions.

Data Analysis

Quantitative analysis. Means and standard deviations were calculated for all of the behavioral statements on each of the criterion. A highest to lowest mean score listing was created by criterion (See Appendices E, F, G, and H). Given that phase II of the research is to focus on a narrower set of important intangibles, attention to the top mean score ratings for each criterion are highlighted in the results section to follow. The lowest rated mean scores across each criterion are also further explored to gain an understanding of what intangibles are of lesser importance and why.

Qualitative analysis. The desired outcome of qualitative data analysis was to identify the highest frequency themes. Additionally the analysis was to examine the content of those themes in relation to the quantitative survey of intangible behavioral statements. Qualitative analysis of interviews and focus groups consisted of coding each session for themes. Themes were categorized under research questions and only the most frequent themes are discussed. The theme counts were organized by research question and are shown in Appendix I. The analysis of the qualitative interview and focus group data was done using a three step process.

Step I. Facilitators and recorders from the data collection effort read through each transcript and identified a tentative list of themes. They then came to consensus on themes for each research question. A master list of themes was created. All coders then used the theme list to code the comments from the same transcript. A majority of comments were coded the same way among all coders. Discrepancies in theme coding among coders were discussed and issues were resolved prior to coding all remaining transcripts.

Step II. Twenty-one (21) total transcripts (16 interview transcripts and five focus group transcripts) were split among three coders. Each coder coded 14 transcripts. This allowed for each transcript to be coded twice which would allow for coding accuracy checks in Step III. Coders coded themes at the session level; when a theme was mentioned once in a session, it was reported once in the results. Similarly, when a theme was mentioned five times in a session it was reported only once in the results. This allowed for the calculation of theme counts among sessions while controlling for method issues that could result from analyzing interview and focus group data together. For example, this method of calculating theme counts does not give greater weight to focus groups where multiple Soldiers are likely to mention the same theme. It also mitigates the repetitive mention of a theme in the same session. Consequently, the session level method of calculating themes reduces potential sources of falsely reporting the frequency of a given theme.

To facilitate citation of in depth descriptions of Soldiers' comments, each coder highlighted the accompanying narrative of a given coded comment. This procedure allowed analysts to include descriptive statements representative of a particular theme. Consequently, theme descriptions are able to be described and reported in a way that reflects the richness and depth of a given theme.

Step III. Each transcript was coded twice by two different coders. Following coding, the two coders met and discussed the themes they identified and the respective text from the transcripts that they highlighted. A total of three 2-hour accuracy sessions took place among coders where they reviewed the transcript that they had both coded. During each session one coder created a new document for each transcript that included all of the agreed upon themes from both coders. In the accuracy sessions, coders found, discussed, and resolved differences, thus providing greater accuracy in the coding process.

Results and Findings

Criticality of Intangibles to Soldier Mission Readiness

Most critical intangibles. Intangible criticality mean scores ranged from 3.16 to 4.70 (See Appendix E). Ratings of three (3) on the response scale equates to an intangible being 'somewhat critical.' To some extent, all of the intangibles that were investigated reflect some level of importance to Soldier mission readiness. That most if not all intangibles are important also found support among interview and focus group Soldiers. Twenty-four percent of qualitative sessions mentioned that all of the intangibles examined by the questionnaire were important to Soldier mission readiness. However, further analysis of the highest rated intangibles from the questionnaire together with themes from interviews and focus groups identified several intangibles that appear to be more critical to Soldier mission readiness than others. Notably several questionnaire items represented more than one intangible. For example, the item "Doing what is right (legally and morally) even when no one is looking" represented both integrity and authenticity. The representation of multiple intangibles within an item reflects the overlap that exists between behavioral demonstrations of the intangibles. Thus, overlapping intangibles are combined in the following discussion.

Intangibles with the highest mean score ratings (listed highest to lowest) that also found support among interview and focus group participants were:

- Integrity/authenticity;
- Initiative;
- Resiliency/hardiness;
- Grit/will; and
- Patriotism/loyalty/pride.

In several instances, Soldiers discussed how and why these intangibles are most critical. Starting with the most critical intangible, quantitative and qualitative findings are discussed in greater detail below.

Integrity/authenticity. Results showed that doing what is right (legally and morally) even when no one is looking was rated most critical among all of the behaviors ($M= 4.70$,

$SD=.83$). Additionally, seven out of the 21 qualitative sessions (33%) mentioned the criticality of these intangibles with regards to Soldier mission readiness. Soldier comments concerning integrity/authenticity stressed the importance of training Soldiers to do what is right because they will be put in positions where they need to act appropriately with little or no guidance from supervisors. For example one Soldier said, “We preach this to Soldiers all the time because they might find themselves unsupervised on the battlefield as they interact with the local population.” Another Soldier mentioned that these intangibles were important to a leader’s trust in their Soldiers, “We have to trust these guys to be able to operate without direct supervision. They need to make moral/ethical judgment calls. That’s my take; being able to trust the team leader or the Soldier as an individual.”

Initiative. Results showed that acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise was among the most critical behaviors to Soldier mission readiness ($M= 4.63$, $SD=.70$). And 10 out of the 21 sessions (48%) mentioned the criticality of this intangible with regards to Soldier mission readiness. When discussing this intangible, Soldier comments focused on the importance of being a “self-starter.” One Soldier said “When existing orders no longer fit the situation, or when unforeseen opportunities or threats arise it is important because Soldiers should know what to do even when someone is not there to tell them what to do.” Similarly another Soldier commented, “When existing orders no longer fit the situation, or when unforeseen opportunities or threats arise, it is important because of all that is going on in theater. There isn’t always time for someone to explain what needs to be done. People need to look at it intuitively.” These comments suggest that initiative is a critical factor to dealing with challenges, uncertainty, and ambiguity that occur in missions.

Resiliency/hardiness. Results showed that recovering quickly from setbacks, shock, injuries, adversity, and stress while maintaining a mission and organizational focus was among the most critical behaviors to Soldier mission readiness ($M= 4.61$, $SD=.65$). Nine out of the 21 sessions (43%) mentioned the criticality of this intangible with regards to Soldier mission readiness. A Soldier mentioned that resiliency/hardiness is important because “in the current operations tempo (OPTEMPO) there is a constant stream of stress and adversity, there’s not a lull, and that has an effect on people.” Further, a Soldier commented “there’s always something that gets in the way and if you don’t recover then the mission can’t continue.”

Grit/will. Results showed that keep going, even when exhausted, hungry, afraid, cold, and wet was among the most critical behaviors to Soldier mission readiness ($M= 4.59$, $SD=.63$). This intangible was not frequently mentioned in the sessions with regards to criticality to readiness. Yet it was mentioned in other areas such as training effectiveness and the need for new training which will be discussed later.

Patriotism/loyalty/pride. Results showed that displaying commitment and allegiance to the Army in support of the United States was among the most critical behaviors to Soldier mission readiness ($M= 4.57$, $SD=.87$). Eight out of the 21 sessions (38%) mentioned the criticality of these intangibles with regards to Soldier mission readiness. In their comments, most Soldiers identified these intangibles as a natural part of Army culture that is ingrained in all Soldiers.

Accountability. Accepting responsibility and consequences for one's actions was a frequent theme concerning critical intangibles to Soldier mission readiness. It was mentioned in seven out of 21 sessions (33%). Results showed it was among the most critical behaviors to Soldier mission readiness ($M= 4.54$, $SD=.93$). Soldiers commented that accountability was “important at all levels” and that there was a “big problem” concerning Soldiers taking responsibility for their actions.

Mental agility. Demonstrating flexibility of mind to anticipate or adapt to uncertain or changing situations was a frequent theme concerning critical intangibles to Soldier mission readiness. It was mentioned in 10 out of 21 sessions (48%). Relative to other behaviors on the questionnaire, results showed that this behavior was between the most critical and least critical behaviors ($M= 4.32$, $SD=.88$). Several Soldiers commented on the need for improvement concerning this intangible, e.g., “that ability to change your mind or think a little differently is just not there and changing that mindset is important to the Army to get where it needs to go.” Some other comments addressing the criticality of mental agility were “Soldiers need to be able to react to a change in mission,” “you might not be able to train for every event that may occur,” and “it ties in with resiliency as well...if your team leader goes down somebody has to step up and take charge.” In the comments, Soldiers said that one has to have mental agility in order to face uncertainty and act in the absence of orders. In other words, Soldiers are suggesting that mental agility is a prerequisite for taking initiative.

Most critical intangibles to effective officer and NCO leadership. Soldiers were asked to identify intangibles that were particularly important to officer and NCO leadership. The intangibles that were most critical were found in two overlapping areas. The first critical area included the intangibles pride and discipline. The second critical area included the intangibles empathy, duty, warrior ethos, and warrior spirit. In the first critical area, “setting and maintaining high standards of conduct” and “leading by example” were frequent themes. Combined, they were mentioned in 29% of sessions.

The second critical area concerned behaviors such as “displaying care and concern for Soldiers” (19% of sessions), “sharing hardships with fellow Soldiers” (10% of sessions), and “accepting responsibility for others” (14% of sessions). Combined, these related behaviors were mentioned in 43% of sessions.

Soldiers commented that intangibles related to taking care of Soldiers were important to both NCOs and officers, but especially for NCOs. Soldiers also noted that setting and maintaining high standards was critically important for NCOs. Concerning critical intangibles for officers, Soldiers commented on the importance of prioritizing tasks and accepting responsibility for others.

Least critical intangibles to Soldier mission readiness. The intangibles that had the lowest mean ratings were pride, warrior ethos/spirit, humility, innovation, and self-awareness/self-efficacy/self-confidence. Notably, there were several behavioral items that referred to different aspects of warrior ethos/spirit. Thus, some of the related behaviors were seen as most critical whereas some were identified as least critical.

In several instances, the Soldiers discussed how and why these intangibles were least critical to Soldier mission readiness. Findings are discussed for the three lowest intangibles as they were directly discussed in the interview and focus group sessions. The fourth and fifth least critical intangibles were not mentioned.

Pride. Results showed that taking pleasure in one's achievements was among the least critical to Soldier mission readiness, $M=3.16$, $SD=1.35$. Six of 21 sessions (29%) provided additional comments as to why this intangible was not important. Soldiers' comments on this behavior suggested that Soldiers "need to do what needs to be done regardless" and that taking pleasure in achievements "should be something that you get from your work." Soldiers generally commented that they receive recognition for their performance, but did not find the ability to take pleasure in one's achievements as critical to mission readiness.

Warrior ethos/warrior spirit. Accepting dependence is one of five behaviors associated with warrior ethos. Results showed that accepting dependence was among the least critical behaviors to Soldier mission readiness ($M=3.59$, $SD=1.26$). This was a frequent theme in the interview and focus group sessions. Eight of 21 (38%) provided specific comments as to why this intangible was least critical in comparison to other intangibles. This was the most frequently mentioned theme concerning least critical intangibles; however, Soldiers' comments suggest an important distinction. For example, one Soldier said "You are kind of bred to depend on yourself, but you should be willing to go to other people for help and advice." Some Soldiers understood this distinction; others were more focused on wanting to be self-reliant. For example, one Soldier said "You should be accepting responsibility for yourself first. If everyone does that you're good...Accepting dependence on others...what's that?"

Humility. This intangible had two behaviors that were measured and both were among the least critical to Soldier mission readiness. This included accepting constructive criticism ($M=3.95$, $SD=1.05$) and acting modestly and avoiding arrogant behavior ($M=3.63$, $SD=1.29$) were rated among the lowest. Both of these themes were frequently mentioned in the interview and focus group sessions as well. Each was mentioned in seven out of 21 sessions (33%). Soldier comments concerning acting modestly suggested that arrogance was not desired, can sometimes be confused with confidence, and in comparison to the other intangibles was less critical. Similarly, concerning accepting criticism, a Soldier commented "it's not as important as some of the other behaviors (intangibles) because most training includes an after action review, so it is already being done." While most Soldiers recognized the importance of humility it was not seen as critical to Soldier mission readiness relative to the other intangibles.

Current Training Effectiveness

Intangibles that currently receive effective training. The intangibles that Soldiers identified as currently receiving the most effective training were all related to the Army values (i.e., patriotism, loyalty, pride, humility, selfless service, duty, personal courage, empathy, honor, and respect). Table X displays the results.

Table 9.

Intangibles receiving effective training

Intangibles	Behavior	<i>M</i>	<i>SD</i>
Patriotism, Loyalty, and Pride	Displaying commitment and allegiance to the Army in support of the United States.	3.38	1.26
Humility	Accepting constructive criticism.	3.39	1.20
Selfless Service, Duty, and Personal Courage	Putting the welfare of the nation, the Army, and one's subordinates ahead of personal welfare.	3.43	1.17
Empathy and Duty	Displaying care and concern for Soldiers.	3.47	1.37
Loyalty, Duty, Respect, Selfless Service, Honor, Integrity, Personal Courage	Displaying Army values in communication and behavior.	3.48	1.06

Notably absent are integrity and authenticity. They were the only two intangibles related to the Army Values where training was rated as ineffective (see next section for details).

Current training effectiveness and frequency of training for the most critical intangibles. As discussed above, one of the most critical intangibles, patriotism/loyalty/pride was also identified as one of the most effectively trained intangibles. To the contrary, the other most critical intangibles tended to receive low training effectiveness ratings. With respect to training frequency, generally all of the behavioral statements were assessed as needing training, $M=2.62$ to 4.04 (where 2 equates to infrequent and 4 equates to frequent). Mean scores concerning the frequency at which the previously discussed most critical intangibles should be trained are discussed below. Soldiers' comments from the interview and focus group sessions concerning the effectiveness of current training are also discussed.

Resiliency/hardiness. Results showed that recovering quickly from setbacks, shock, injuries, adversity, and stress while maintaining a mission and organizational focus was the least effectively trained behavior, $M=2.65$, $SD=1.12$. Further, it was the behavior that required the highest frequency of training $M=4.04$, $SD=.94$. There was no frequent theme in the focus group and interview data concerning effective training for resiliency/hardiness. However, data suggested that medical training is helpful for training this intangible (e.g., "administering to casualties – 9 line medivac, getting to the pickup zone)." Another Soldier provided similar comments and also addressed the effectiveness of counseling and Family Readiness Groups (FRG) "We train on that through medical training that we receive, counseling from the chaplains on the stress, and the FRG meetings that we have on a monthly basis. The programs within the FRG that the family members can go to alleviate stress on the Soldier and their family members."

Initiative. Results showed that acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise was among the least

effectively trained behaviors, $M= 2.85$, $SD=1.24$. It was also among the behaviors that required the highest frequency of training $M=3.77$, $SD=1.08$. These results were supported by theme findings. Five out of the 21 sessions (24%) elaborated on the effectiveness of current training for this intangible. Two main findings concerning initiative were the effectiveness of situational exercises and event based training combined with AARs and the effectiveness of putting Soldiers in new or unfamiliar situations and having them figure out a solution. One Soldier referring to how initiative is trained said “You do a live fire of fighting through a trench. You get them through the walk through and they do it well. Then you throw in new variables. That’s when the AAR process comes in.” A Soldier’s comments point to the importance of training junior leaders in ambiguous or unfamiliar environments, “Junior leaders need more situations where they are lacking in information and have to act.” Lastly, a junior Soldier realized the effectiveness of his leader providing training opportunities that involved unfamiliarity; “Half the time my leader lets us run with things. Then I know how to do things and learn. My leader gives me a task and lets me figure out how to do it.”

Integrity/authenticity. Results showed that doing what is right (legally and morally) even when no one is looking was among the least effectively trained behaviors, $M= 3.02$, $SD=1.28$. It was among the behaviors that required the highest frequency of training $M=3.94$, $SD=1.06$. There were not frequent themes concerning how integrity/authenticity can effectively be trained. Soldiers’ comments suggest that “occasionally we may have a discussion about discipline.” Further, when referencing the training of integrity/authenticity, a Soldier commented that training is often “taught in big classes” and that this training was ineffective.

Mental agility. Results showed that demonstrating flexibility of mind to anticipate or adapt to uncertain or changing situations was among the least effectively trained behaviors ($M=3.09$, $SD=1.22$). This intangible was not rated as high as other behaviors concerning the frequency of training needed, however, results indicated that Soldiers thought this intangible should be trained somewhat frequently $M=3.44$, $SD=1.24$. Only five out of the 21 sessions (24%) elaborated on the effectiveness of current training for this intangible. Soldiers’ comments concerning training mental agility focused on the relationship between mental agility and adaptability and reacting to change. Considering the ambiguous and uncertain nature of the current mission environment, one Soldier said, “If you’re not flexible you won’t make it.” Soldiers also provided recommendations on how to effectively train mental agility. Throughout the sessions, Soldiers mentioned the criticality of teaching Soldiers ‘how to think’ vs. ‘what to think’. Training and measurement on mental agility should involve teaching Soldiers ‘how to think.’

Grit/will. Results showed that keep going, even when exhausted, hungry, afraid, cold, and wet was among the least effectively trained behaviors, $M=3.11$, $SD=1.24$. This intangible was not rated as high as other behaviors concerning the frequency of training needed, however, results indicated that Soldiers thought this intangible should be trained frequently $M=3.59$, $SD=1.25$. Eight out of the 21 sessions (38%) elaborated on the effectiveness of current training for this intangible. Soldiers rated training for grit/will as ineffective; however, they identified several methods of effective training, such as basic training, field training, National Training Center, and physical training (PT). The central finding concerning training for these intangibles was that training needs to be challenging and difficult. Further, the outcome of such training is that Soldiers break previous limitations and find new ways of overcoming adversity and

achieving goals. Referring to a challenging training program one Soldier said, “You learn what you are capable of, how far you can push yourself, and just keep going. Also, it helped me focus.” Another Soldier provided more detail into the benefits of training on these intangibles “What was most important was learning how far you can push yourself even when you think that you don’t have the resources, like the lack of food, the lack of sleep, enduring that hardship and then having to think about things and solve problems under that kind of condition. It brings you to the edge and back. I learned more about myself and what I could do as a leader to push other people to that limit and that was probably the most important thing.”

Effective training methods. Soldiers were asked to identify effective methods for training intangibles. Soldiers frequently mentioned (24% of sessions) that these behaviors were not overtly trained. For example, one Soldier said “We don’t have classes for this, but I think that throughout our training cycle we touch a little bit on everything.” This comment generally provides a summary of how Soldiers felt intangibles were being trained. Therefore, the discussion of effective training methods focused primarily on training designed for other purposes (e.g., skills based training and operations).

The methods that Soldiers identified can be categorized into two broad categories: daily training (e.g., physical fitness training) and event-based training (e.g., field exercises or NTC). Soldiers provided a variety of reasons why these methods were effective. The methods that Soldiers identified are displayed below with comments from the sessions to describe why the method was effective.

Daily training. Soldiers’ comments concerning effective daily training were categorized into two themes. The first theme, “on the job training/occurs naturally in the course of the day” was frequent (57% of sessions). Soldier comments suggested that on the job training was effective for training the intangibles. Further, Soldiers commented that they preferred this method of utilizing hands-on training to classroom training. Soldiers said that though the intangibles are not overtly trained, most of the intangibles are learned on a daily basis in garrison by leaders who set a good example. Some of the behaviors that were mentioned (related intangibles in parentheses) were prioritizing tasks (warrior ethos/warrior spirit), sharing hardships (empathy), displaying care and concern for Soldiers (empathy/duty), and setting and maintaining standards (pride/discipline).

The second theme identified physical fitness training as an effective daily training method that is used for training some of the intangibles. This theme was frequently mentioned (29% of sessions). Soldiers identified that PT was an effective method for training on the following behaviors physically face fear, danger and adversity (personal courage), and sharing hardships (empathy).

Event-based training. There were four different types of event-based training identified as effective means for training the intangibles that received frequent comments in the interview and focus group sessions. The four different types were skills-based training, resiliency and medical training, Soldier development programs, and leader feedback.

Skills-based training. Table 10 displays the different types of skills-based training that were mentioned for effectively training intangibles and the percentage of times the methods were mentioned in focus group and interview sessions.

Table 10.

Effective Skills-Based Training for Training Intangibles

Effective Methods	% of sessions
Field exercises	57%
Situational exercises	38%
Live fires	29%
NTC	24%
Gunnery	14%
Lane training	14%
Unit specific field exercise	14%

Soldiers mentioned the effectiveness of these training types was due to the hands-on, realistic nature of simulating and practicing skills/missions. Further, incorporating uncertainty and making training challenging/stressful were identified as adding to the realism in training and thereby enhancing training effectiveness. Skills-based training was cited as an effective means for training several intangibles such as resiliency, hardiness, warrior ethos, warrior spirit, grit, will, initiative, mental agility, adaptability, and situational awareness.

Resiliency and medical training. Table 11 displays the resiliency and medical training that were mentioned for effectively training intangibles and the percentage of times the training methods were mentioned in focus group and interview sessions. Soldiers specifically mentioned the effectiveness of resiliency and medical training for training the intangibles personal courage and self-confidence.

Table 11.

Effective Resiliency and Medical Training for Training Intangibles

Effective Methods	% of sessions
Resiliency Training	19%
Combat Life-Saver Training/Medical Simulation Training Center Training/Trauma Lane	29%

Soldiers identified resiliency and combat life-saver training as effective training methods for preparing Soldiers for the realities of combat. For example, one Soldier said recalling combat life saver training, "...you're dealing with the human side though, the guys with arms off or dead and dealing with that. We expose Soldiers to videos and it sets their mind working to

experience those things. If they don't have that you're going to freak them out. Exposing them to medic training would be good." Referring to the Resiliency Center another Soldier said "The resiliency campus is a place you can go on post and they have meditation rooms down there and spa therapy. It's an old church that they converted into a campus. They have a reflection pond. It's a place where Soldiers can go get away from life."

As with the skills-based training, the comments concerning medical training effectiveness stressed the importance of providing realism in training. For example, one Soldier commented on medical training that he thought was effective "It's like being inside a realistic scenario. It's all built up to look like an Iraqi neighborhood. The wounds are realistic looking on the mannequins and everything like that. There's liquid blood and things like that, so people get that splashed on them. For the first time it's at Ft. Hood instead of in combat. So it's a good trainer. So anything that we can do to add to that realism...more is better."

Soldier development programs. Table 12 displays the different types of Soldier development programs that were mentioned for effectively training intangibles and the percentage of times the training methods were mentioned in focus group and interview sessions. Soldiers mentioned three Soldier development programs, specifically, Basic Training Problem Solving exercises, Ranger School, and Mungadai Training (a type of survival training that is used to push Soldiers to their limits). Soldiers mentioned that these programs were effective in training self-confidence, grit, will, resiliency, and hardiness.

Table 12.

Effective Soldier Development Programs for Training Intangibles

Effective Methods	% of sessions
Ranger School	14%
Mungadai Training	10%
Basic Training Problem Solving exercises	10%

The main features of the development programs that were apparent in comments were their ability to push Soldiers to their limits and that the programs were challenging. Concerning the difficulty of training, one Soldier said "You learn what you are capable of, how far you can push yourself, and just keep going." Another effective attribute of these programs was team-based training. Soldiers commented that challenging team-based training contributed to cohesion and building trust within their team.

Leader feedback. Table 13 displays the different types of leader feedback methods that were mentioned for effectively training intangibles and the percentage of times the methods were mentioned in focus group and interview sessions. Soldiers mentioned that leader feedback methods were an effective way of training most of the intangibles. Specifically, Soldiers identified the effectiveness of counseling for training resiliency and hardiness. Soldiers also mentioned that mentorship was an effective means for instilling discipline.

Table 13.

Effective Leader Feedback Methods for Training Intangibles

Effective Methods	% of sessions
After Action Reviews	24%
Counseling	19%
Mentorship	10%

Ineffective training methods. Soldiers also identified several training methods that were ineffective for training the intangibles. Table 14 displays the different types of ineffective training methods and the percentage of times the methods were mentioned in focus group and interview sessions. Far more Soldiers commented that classroom training was ineffective rather than effective. Further, Soldiers mentioned that they did not think that using PowerPoint slides, a common classroom method of instruction, was an effective means for training intangibles.

Table 14.

Ineffective Methods for Training the Intangibles

Ineffective Methods	% of sessions
Classroom Training	38%
PowerPoint Instruction	19%
Qualifying/Check the box training	14%

Soldiers provided comments criticizing the quality of some skills-based training. Specifically some Soldiers mentioned skills-based training was ineffective when the training appeared to be too simplistic or “check-the-box” training. One Soldier provided a detailed explanation on the ineffectiveness of “check-the-box” training; “There’s a gap in the sense of rifle training: they train to qualify not to train. It’s checking the block. There’s not a lot of units going out there to do training on that. All of the training I’ve done is to check the box rather than training to build team work.”

Training Needs and Gap Analysis

In this section, Soldiers were asked to rate and discuss the need for new training or improvements to existing training for each intangible construct. Quantitative and qualitative findings for the top five most critical intangibles for Soldier mission readiness are discussed below.

Patriotism/loyalty/pride. The results showed that displaying commitment and allegiance to the Army in support of the United States (a behavioral manifestation of the intangible constructs of patriotism, loyalty, and pride) was fifth most important for Soldier

mission readiness. In terms of need for new or improved training, the results for displaying commitment and allegiance to the Army in support of the United States were quite low (i.e., 23rd) when compared to other constructs being assessed. Results from the questionnaire indicate that a moderate need existed ($M=3.14$, $SD=1.40$) with 45% (24 out of 55) of Soldiers rating the need as high to very high. Across 10 of the 21 interview/focus group sessions Soldiers indicated that Soldiers were lacking in Army values and/or discipline; both of which are essential aspects of these constructs. Loyalty, for example, is an Army value. A sample of comments that mention the lack of training on Army values and discipline include, “In the past, learning the Army values was a focus of Basic Combat Training (e.g., Ft. Jackson). Soldiers would get an Army values card. Now, I think the focus of BCT is more on combat. I don’t know if Soldiers are getting the training in values that they need.” “We are paying the price right now for Operation Iraqi Freedom (OIF); before we didn’t have all the moral waivers, etc. We are paying the price now” and “There is a huge gap with first line supervisors and young Soldiers. The NCOs are not doing as good a job of enforcing and maintaining the standards. If an NCO just walks past an issue they see with a Soldier then they have just established a new standard.”

Grit/will. Results of the data showed that keeping going, even when exhausted, hungry, afraid, cold, and wet (a behavioral manifestation of will or grit) was fourth most important for Soldier mission readiness and fifth most important in terms of need for new or improved training. Results from the questionnaire showed a moderate to high need ($M=3.55$, $SD=1.32$) with over half (32 out of 56, 57%) rating the need as high to very high. Consistent with these findings, the qualitative data (albeit indirectly) emphasizes this need for new or improved training in will and grit when it speaks to similar concepts like being a self-starter (two sessions) and having a good work ethic (two sessions). An example of this type of comment includes “Soldiers need to be trained to be self-starters,” and “There is a need for instilling a good work ethic in Soldiers when in a garrison environment.”

Resiliency/hardiness. Soldier mission readiness, recovering quickly from setbacks, shock, injuries, adversity, and stress while maintaining a mission and organizational focus (a behavioral manifestation of resiliency and hardiness) was seen by Soldiers as needing new or improved training. In fact, this construct received the highest ratings for this need ($M=3.80$, $SD=1.27$). Findings showed 63% (35 out of 56) of Soldiers rated the need as high to very high. During the qualitative analysis, six interview/focus group sessions (i.e., 29%) identified recovering quickly from setbacks as a behavior that needed new or improved training. For example, one Soldier (when referring to resiliency training) stated “I don’t think we are doing that training enough. I think that needs more frequency. I was referring to field training, immersion, living in the field trains, some of this kind of stuff.” Another replied “I think we do a shotgun approach to resiliency training prior to deployment or after. I think there is a lot of money thrown at it and we are grasping at it, but haven’t hit it yet.”

In addition to recovering quickly from setbacks, three interview/focus group sessions (i.e., 14%) identified being prepared for stress, another manifestation of resiliency and hardiness, as a behavior that needed attention. For example, one Soldier said “We need to prepare our Soldiers ahead of time to better compartmentalize and deal with the stuff that goes on down range so that things won’t be as bad when they get back.” Another reported “Being mentally prepared; its stressful being downrange vs. being on the Forward Operating Base (FOB).

Preparing yourself to deal with that... you need to prepare a Soldier on being ready and how you can deal with it. I feel like I'm not getting that type of training."

Initiative. Results showed that acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise (a behavioral manifestation of initiative) was third highest in terms of need for new or additional training. Results from the questionnaire showed a moderate to high need ($M=3.57$, $SD=1.29$) with the majority of Soldiers (34 out of 56, 61%) rating the need as high to very high. Consistent with these findings, two interview/focus group sessions identified being a self-starter (a similar construct) as needing new or improved training. For example, one Soldier mentioned that "Soldiers now-a-days they are not grown from the same seed like we were. They have issues; they're not self starters. All of this stuff on here we have to force on them through 'smoking' them or counseling. We are tasked with more to do on these Soldiers than it used to be. You don't have self-starters. I'm talking about E-5s and 6s and below. Everything they do not do by themselves they have to be governed because mom and dad didn't make them do it." Another theme, though limited (i.e., mentioned in only one interview/focus group session) identified initiative as a trait by saying "acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise (i.e., initiative) is just something that happens. It is not something that is taught. When a mission needs to get done, someone will always take charge."

Integrity/authenticity. Results showed that doing what is right (legally and morally) even when no one is looking (a behavioral manifestation of integrity and authenticity) was second highest in terms of need for new or improved training. Results from the questionnaire showed a moderate to high need ($M=3.68$, $SD=1.31$) with over half of the Soldiers (29 out of 56, 63%) rating the need as high to very high. These findings were supported in the qualitative data as well. Six sessions (i.e., 29%) identified Army values as a construct in need of new or additional training. For example, one Soldier said, when referring to Soldiers not being able to adjust to Army life "I think it's the moral/ethical piece...about the people who are coming in." Another reported "Then there's talk about the spice that's going through the barracks; synthetic marijuana. The bad apples have affected what good we had." That being said, two Soldiers felt that closing the training gap on this intangible would not be easy. One Soldier saw it as an inherent trait, i.e., "a lot of it is genes too. How much effort can you put to teaching morality to someone who doesn't have it?" Another Soldier saw it as generally difficult "...doing what is right (legally and morally) even when no one is looking are hard behaviors to train."

Accountability. Accepting responsibility and consequences for one's actions (a behavioral manifestation of accountability) was not seen as one of the top five behaviors needed for Soldier mission readiness, although it did tie for sixth place with mentally, morally, and emotionally facing fear, danger, and adversity (a behavioral manifestation of personal courage). That being said, the construct of accountability did make the top five for needing new or improved training. Results from the questionnaire showed a moderate to high need ($M=3.57$, $SD=1.32$) with slightly more than half of Soldiers (29 out of 56, 52%) rating the need as high or very high. Consistent with these findings, the qualitative data emphasizes this need for new or improved training in accountability when it speaks to the related concept of discipline. For example, one Soldier said "I'm disappointed nowadays in the discipline level in the Army. I don't know if it's because of the war or what, but when I first came in the Army it was a lot

different.” Another reported “Soldiers do great in the field because they know that they will not be going home in the evening. We have very few issues in the field. However, the problems start once we get back in garrison. Learning to accept this lifestyle is the issue.”

Theme Findings Pertinent to Training Development

In addition to what has been presented above, several broad themes were identified in the qualitative data. These are themes that have important implications for the development of intangibles and should be considered when selecting the most effective learning methods and measurement tools for training these constructs. A discussion of each theme is provided below.

Effective features for training intangibles. There were several comments and recommendations about features that should be incorporated into training in order to effectively train the intangibles. Table 15 displays the most frequently recommended training features and the percentage of sessions that the features were mentioned across all sessions.

Table 15.

Effective Features for Training Intangibles

Effective Training Features	% of sessions
Difficult/rigorous/challenging training	38%
Experiential training	38%
Realistic training	33%
Train using repetition	29%
Incorporate uncertainty into training	29%
Training should train Soldiers to deal with stress	19%
Team-based training	14%

Soldiers frequently mentioned that training should be made to be difficult or challenging. The most effective training experiences that Soldiers discussed referenced training that pushed them beyond their limits and made them grow to reach new limits. Soldiers also frequently mentioned their desire to have hands on training that utilized experiential learning. Similarly, Soldiers stressed the importance of making training realistic. These recommendations point to the effectiveness of hands-on, realistic, and difficult training. These features tended to be discussed when describing the effectiveness of training methods (e.g., field exercises, NTC, medical training). Soldiers also noted that repetition was required for gaining and maintaining proficiency on the intangibles.

Soldiers suggested that more team-based training should be done to build trust and cohesion. Further, Soldiers wanted training to include dealing with uncertainty and stress. The current operational environment contains high levels of uncertainty and can cause high levels of stress. Thus, in order to effectively train Soldiers to be mission ready, training would need to incorporate these important features.

Challenges in developing training for intangibles. There were several themes regarding challenges in developing training for intangibles. Themes and relevant quotes are discussed below.

Not enough time for training. The most prevalent theme identified in the data regarding challenges in developing training for intangibles was “not enough time for training.” This particular theme was mentioned in 13 of the 21 interview/focus group sessions (i.e., 62%). A sample of comments include, “I don’t think that we have time to train on all of these;” “What we don’t have is time. To make Soldiers better, you have to have more time between deployments” and “Like every unit in the Army, there are more things to do (from higher HQ, etc.) than we have time to do.”

General difficulties in training a behavior. The next most common theme was “general difficulties in training a behavior.” This particular theme was mentioned in nine of the 21 interview/focus group sessions (i.e., 43%) and was often associated with the intangible construct of courage. For example, one Soldier said “Even with realistic Joint Readiness Training Center scenarios, Soldiers know it isn’t real. When they get hit, they know they can turn off their MILES gear. There really isn’t a good way to train someone that just saw their buddy get shot in the face to then go and storm a building. I don’t know of a way to realistically simulate danger and adversity so that Soldiers can learn to face it. Everyone knows that it isn’t real.” Another stated “...I don’t know how to get at that, but that’s something you have to do. You can’t go to a classroom and train on facing adversity.”

Behaviors that are inherent to each person. The next most common theme identified in the data was “behaviors are inherent to each person/cannot be trained/either a Soldier is proficient or they are not.” This particular theme was mentioned in seven of the 21 interview/focus group sessions (i.e., 33%). For example, one Soldier said “I can’t say that because a lot of them are inherent to being in the Army.” Another suggested “These aren’t things that are taught out of a book. So it’s what... a Soldier is taking out of a situation. I can’t learn some intangibles that another Soldier wouldn’t learn. Every day I could learn something at a daily training. It’s all on the person.”

Conclusions

This section summarizes and interprets the primary findings of the initial data collection for this research. Soldiers were asked to rate each intangible on its criticality to Soldier mission readiness and whether current training associated with its development was effective. The difference between the two scores was then used to identify gaps in current training effectiveness and needs for training. Intangibles with the largest gap between rated criticality and training effectiveness were resiliency, hardiness, initiative, integrity, authenticity, will, grit, and discipline. Further, focus group and interview Soldiers were asked to identify training gaps as well. The top training gaps that Soldiers identified were resiliency, hardiness, integrity, authenticity, initiative, accountability, will, and grit. Table 16 depicts intangibles with identified training needs, with highest needs starting at the top.

Table 16.

Intangibles Training Needs

Gaps between Ratings of Criticality and Current Training Effectiveness (Quantitative Data)	Training Gaps Identified by Soldiers (Qualitative Data)
Resiliency	Resiliency
Hardiness	Hardiness
Initiative	<i>Integrity</i>
<i>Integrity</i>	<i>Authenticity</i>
<i>Authenticity</i>	Initiative
Will	<i>Accountability</i>
Grit	Will
<i>Discipline</i>	Grit

Note. Italics identify intangibles related to the meta-construct of values, principles, standards, and qualities.

The paragraphs that follow discuss these intangibles along with literature review findings that further assist in prioritizing the intangibles. This prioritization is important toward the Phase II research objective of creating field measures for a smaller set of critical and needed intangibles.

Values, Principles, Standards, and Qualities

Soldiers viewed the intangibles in the values, principles, standards, and qualities meta-constructs as critical to Soldier mission readiness and rated current training as effective. Thus, there may not be as great of a need for training on the intangibles of patriotism, loyalty, and pride. The Army values of authenticity and integrity, which received lower ratings for training effectiveness, seem like good candidates for further Phase II development. However, as noted in the literature review and by Soldier responses, all of these intangibles are generally thought of as being trait-based and therefore less subject to change by training. Therefore, intangibles related to values, principles, standards, and qualities were not recommended for further Phase II research and development.

Resiliency

Results from the data collection showed resiliency to be one of the most important constructs for Soldier mission readiness. This was not surprising considering the amount of attention resiliency has received in recent years by the Army. In fact, as mentioned in the literature review, the Army developed a myriad of different programs and tools aimed at enhancing resiliency; many of which were empirically supported. That being said, it is

interesting to note that with all of these efforts, Soldiers still perceive current resiliency training to be inadequate; giving it the highest ratings of any of the other intangible constructs in terms of ineffectiveness and need for new or improved training. This disparity would suggest that current resiliency training might not be meeting the expectation of those who are using it. Consequently, resiliency was not recommended for further Phase II research and measurement development.

Hardiness

Results from the data collection indicated that hardiness was also one of the most important constructs for Soldier mission readiness. As with resiliency, it was rated highest in terms of training ineffectiveness and need for new or improved training. Unlike with resiliency, Army doctrine does not mention it as an important construct, however, literature suggests that perhaps hardiness is a pathway to resiliency. The majority of research in this area view hardiness as a personality trait; although, some evidence suggests hardiness can be trained. It was recommended that hardiness be selected for continued measurement and training method enhancement in Phase II.

Initiative

The literature review and data collection were fairly consistent in terms of the importance of initiative to Soldier mission readiness. Results from the data collection indicated that initiative was one of the most critical constructs for Soldier mission readiness and Army doctrine views it as an essential component of mission success. In addition, both, Army doctrine and research in this area suggest manipulating the environment that a person trains in can be an effective way of developing initiative. For example, Army doctrine suggests using event-based and situational exercises that incorporate challenging, complex, ambiguous, and uncomfortable situations as a means of doing this. That being said, current training on this construct was seen as ineffective and in need of new or improved training. This disparity would suggest that current initiative training might not be meeting the expectation of those who are using it. Thus, it was recommended that initiative be selected for continued measurement and training method enhancement.

Will

As for the effectiveness of current training, will was one of the least effectively trained constructs identified while at the same time one of the highest rated in terms of needing new or improved training. That being said, some of the Soldiers did mention a few training methods they found to be helpful in fostering will. These included field training exercises, such as the NTC and daily PT. They also mentioned that to be effective, training needed to be challenging and difficult. As for empirical support for such methods, the literature on will has remained fairly silent. However, self-regulation, a similar construct, has shown some promise. It was recommended that will be selected for continued measurement and training method enhancement in Phase II.

Grit

Results from the data collection indicated that grit was also one of the most important constructs for Soldier mission readiness. Yet as with will, was rated high in term of training

ineffectiveness and need for new or improved training. Grit is currently viewed as a personality trait in the literature and little if any evidence has shown it to be trainable. In addition, current Army doctrine does not mention grit nor does it discuss successful training methods for its development. Further review of the literature should examine how grit is measured and address the trainability issue. Because of the criticality, ineffectiveness of training, and expressed need for new training, grit was selected for continued measurement and training method enhancement in Phase II.

Recommendations

In sum, a number of intangibles and their associated behavioral content deserve the attention of BCTs for training and measurement. Analysis of Phase I literature review, quantitative and qualitative data have served to identify a reduced number of critical intangibles for which there is also a high need for new or improved training. This analysis eliminated resiliency and mental agility from further study and development. The Army has already established a proponent for resiliency and implemented training programs to support it. And although mental agility was noted as critical to Soldier mission readiness by focus group Soldiers, the same Soldiers did not quantitatively rate it as critical nor having particularly low training effectiveness.

The intangibles recommended for Phase II measurement and training method enhancement are initiative, will, grit, and hardiness. This recommendation is grounded in their 1) criticality to Soldier mission readiness, 2) expressed Soldier need for new training, 3) the feasibility of measurement and training, and 4) the importance placed on these intangibles in the literature and doctrine. Effectively enhancing the integration of these intangibles into the BCT training and assessment strategy is believed to be the best way to ensure Soldier psychological mission readiness. Thus, Phase II research will choose one or more of these intangibles to develop and field content valid measures. Additionally, effective and efficient training and learning methods for these intangibles will be identified. The contributions of this Phase I report, then, contribute to the overall applied research objective of providing Army BCTs with a training and measurement strategy that enhances Soldier psychological readiness for their assigned missions.

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ACRONYMS

AAR	After Action Review
AKO	Army Knowledge On-line
ALD	Accelerating Leader Development
AMEDD	Army Medical Department
ARI	U.S. Army Research Institute for the Behavioral and Social Sciences
ATIA	Army Training Information Architecture
ATLDP	Army Training and Leader Development Panel
BCT	Brigade Combat Team
CALL	Center for Army Lessons Learned
CCM	Close Combat Marines
CECA	Critique-Explore-Compare-Adapt
CGSC	Command and General Staff College
COA	Courses of Action
COC	Combat Operations Center
COIN	Counterinsurgency
CTC	Combat Training Centers
DIT	Defining Issues Test
DTIC	Defense Technical Information Center
EBSCO	Elton B. Stephens Company
FAA	Functional Area Analysis
FM	Field Manual
FOB	Forward Operating Base
IET	Initial Entry Training
JSPE	Jefferson's Scale of Physician Empathy
KSAO	Knowledge, Skills, Abilities, and Other Characteristics
MARS	Mission Awareness Rating Scale
MDMP	Military Decision-Making Process
MEDLINE	Medical Literature Analysis and Retrieval System Online
MHAT	Mental Health Advisory team
MILES	Multiple Integrated Laser Engagement System
MLQ	Multifactor Leadership Questionnaire
MSAF	Multi-Source Assessment and Feedback
MSTC	Medical Simulation Training Center

NTC	National Training Center
OBT&E	Outcomes Based Training & Education
OIF	Operation Iraqi Freedom
OODA	Observer, Orient, Decide, and Act
OPFOR	Opposing Force
OPTEMPO	Operations Tempo
POI	Programs of Instruction
PT	Physical Training
PZ	Pickup Zone
S3	Operations Officer
SABARS	Situation Awareness Behavioral Rating Scale
SF	Special Forces
SFAS	Special Forces Assessment and Selection
SIMNET	SIMulation NETwork
SJT	Situational Judgment Test
STX	Situational Training Exercise
TADSS	Training Aides, Devices, Simulators, and Simulations
TDS	Tactical Decision-Making Simulation
TDG	Tactical Decision-Making Game
TKML	Tacit Knowledge for Military Leadership
TRADOC	Training and Doctrine Command
TSP	Training Support Package
UCI	Unit Cohesion Index
WRAIR	Walter Reed Army Institute of Research

APPENDIX A

INTERVIEW AND FOCUS GROUP QUESTIONNAIRE

BCT Preparatory Skill Set for Brigade Combat Teams Questionnaire

Instructions: The following questionnaire displays a list of behaviors associated with Soldier performance and readiness. There are four questions that you are asked to rate for each of the behaviors. An example and information about how to rate each behavior are provided below. Please read the Example and the Question Key carefully.

Example:

You will be asked to rate the behavior, “Physically facing fear, danger, and adversity” in the following areas:

- How critical is physically facing fear, danger, and adversity to Soldier readiness?
- How effective is current training concerning physically facing fear, danger, and adversity?
- What is the need for new training or improvement on existing training concerning physically facing fear, danger, and adversity?
- What is the frequency of training that is needed concerning physically facing fear, danger, and adversity in order to gain and maintain proficiency?

Question	Criticality to Readiness	Effectiveness of Current Training	Need for New/Improvement in Existing Training	Frequency of Training Needed
Description	In this column, rate how critical the behavior is to Soldier readiness	In this column, rate how effective current training is at training the behavior in question	In this column, rate the need for new training or improvement on existing training regarding the behavior in question	In this column, rate how often training needs to be conducted to gain and maintain proficiency for the behavior in question
Scale	1= Not at all Critical 2= Slightly Critical 3= Somewhat Critical 4= Critical 5= Very Critical	0= No Training Available 1= Very Ineffective 2= Ineffective 3= Neither ineffective nor effective 4= Effective 5= Very Effective	1= Very Low Need 2= Low Need 3= Moderate Need 4= High Need 5= Very High Need	0= No Training Needed 1= Very Infrequent 2= Infrequent 3= Neither Infrequent nor Frequent 4= Frequent 5= Very Frequent

BCT Preparatory Skill Set for Brigade Combat Teams Questionnaire

	Criticality to Readiness	Effectiveness of Current Training	Need for New/Improvement in Existing Training	Frequency of Training Needed
Soldier Behaviors	1= Not at all Critical – 5=Very Critical	0=No Training Available 1= Very Ineffective – 5= Very Effective	1= Very Low Need 5= Very High Need	0= No Training Needed 1= Very Infrequent - 5= Very Frequent
Prioritizing tasks for mission accomplishment.				
Making trade-offs in the application of tactics, techniques, and procedures.				
Accepting responsibility for others.				
Accepting dependence on others.				
Calling upon one's inner desire to put forth effort into meeting a need.				
Recovering quickly from setbacks, shock, injuries, adversity, and stress while maintaining a mission and organizational focus.				
Growing and thriving in the face of challenges.				
Keep going when pursuing long-term goals.				
Keep going, even when exhausted, hungry, afraid, cold, and wet.				
Acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise.				
Introducing something new for the first time when needed or an opportunity exists.				
Demonstrating an accurate belief in one's ability to succeed at a task, reach a goal, or face challenges.				
Demonstrating an accurate awareness of one's behavior, traits, and abilities.				
Observing and understanding new situations and changes in the environment.				
Reacting appropriately to new situations and changes in the environment.				
Demonstrating flexibility of mind to anticipate or adapt to uncertain or changing situations.				
Using information to make good decisions.				

BCT Preparatory Skill Set for Brigade Combat Teams Questionnaire

	Criticality to Readiness	Effectiveness of Current Training	Need for New/Improvement in Existing Training	Frequency of Training Needed
Soldier Behaviors	1= Not at all Critical – 5=Very Critical	0=No Training Available 1= Very Ineffective - 5= Very Effective	1= Very Low Need 5= Very High Need	0= No Training Needed 1= Very Infrequent - 5= Very Frequent
Demonstrating moral and ethical reasoning to address situations, regardless of complexity or difficulty.				
Physically facing fear, danger, and adversity.				
Mentally, morally, and emotionally facing fear, danger, and adversity.				
Displaying care and concern for Soldiers.				
Sharing hardships with fellow Soldiers.				
Taking pleasure in one's achievements.				
Setting and maintaining high standards of conduct.				
Taking the right action even when you don't feel like it.				
Accepting responsibility and consequences for one's actions.				
Displaying commitment and allegiance to the Army in support of the United States.				
Accepting constructive criticism.				
Acting modestly and avoiding arrogant behavior.				
Displaying the Army values in communication and behavior.				
Building a mutual understanding of trust and concern in relationships.				
Putting the welfare of the nation, the Army, and one's subordinates ahead of personal welfare.				
Doing what is right (legally and morally) even when no one is looking.				

APPENDIX B

LINKAGE BETWEEN BEHAVIORAL STATEMENTS AND INTANGIBLES

Behavior	Intangible
Prioritizing tasks for mission accomplishment.	Warrior Ethos/Warrior Spirit
Making trade-offs in the application of tactics, techniques, and procedures.	Warrior Ethos/Warrior Spirit
Accepting responsibility for others.	Warrior Ethos/Warrior Spirit
Accepting dependence on others.	Warrior Ethos/Warrior Spirit
Calling upon one's inner desire to put forth effort into meeting a need.	Motivation/Warrior Ethos/Warrior Spirit
Recovering quickly from setbacks, shock, injuries, adversity, and stress while maintaining a mission and organizational focus.	Resiliency/Hardiness
Growing and thriving in the face of challenges.	Resiliency/Hardiness/Warrior Ethos/Warrior Spirit
Keep going when pursuing long-term goals.	Grit/Will
Keep going, even when exhausted, hungry, afraid, cold, and wet.	Grit/Will
Acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise.	Initiative
Introducing something new for the first time when needed or an opportunity exists.	Innovation
Demonstrating an accurate belief in one's ability to succeed at a task, reach a goal, or face challenges.	Self-efficacy/Confidence
Demonstrating an accurate awareness of one's behavior, traits, and abilities.	Self-awareness/Self-Efficacy/Self-Confidence
Observing and understanding new situations and changes in the environment.	Adaptability/Situational Awareness/Sense-making/Sound Judgment/Warrior Ethos/Warrior Spirit
Reacting appropriately to new situations and changes in the environment.	Adaptability
Demonstrating flexibility of mind to anticipate or adapt to uncertain or changing situations.	Mental Agility
Using information to make good decisions.	Sound Judgment
Demonstrating moral and ethical reasoning to address situations, regardless of complexity or difficulty.	Moral Ethical Judgment

Behavior	Intangible
Physically facing fear, danger, and adversity.	Personal Courage
Mentally, morally, and emotionally facing fear, danger, and adversity.	Personal Courage
Displaying care and concern for Soldiers.	Empathy/Duty
Sharing hardships with fellow Soldiers.	Empathy
Taking pleasure in one's achievements.	Pride
Setting and maintaining high standards of conduct.	Pride/Discipline
Taking the right action even when you don't feel like it.	Discipline
Accepting responsibility and consequences for one's actions.	Accountability
Displaying commitment and allegiance to the Army in support of the United States	Patriotism/Loyalty/Pride
Accepting constructive criticism.	Humility
Acting modestly and avoiding arrogant behavior.	Humility
Displaying the Army values in communication and behavior.	Loyalty/Duty/Respect/Selfless Service/Honor/Integrity/Personal Courage
Building a mutual understanding of trust and concern in relationships.	Respect
Putting the welfare of the nation, the Army, and one's subordinates ahead of personal welfare.	Selfless Service/Duty/Personal Courage
Doing what is right (legally and morally) even when no one is looking.	Integrity/Authenticity

APPENDIX C

INTERVIEW AND FOCUS GROUP PROTOCOL

Preparatory Skill Set for Brigade Combat Teams (BCT) Protocol

Session Information

Date: _____

Time: _____

Interviewer: _____

Interviewee's Title/Position: _____

Introduction and Research Purpose

Good morning/good afternoon and thank you for taking the time to participate in this focus group/interview. My name is _____ with ICF International. I am part of a research team that has been contracted by the U.S. Army Research Institute (ARI) to identify important skill sets to Soldier mission readiness. The skill set of interest in this research is collectively termed intangibles; things such as confidence, adaptability, mental toughness, and so on. The information you provide today will be applied to better develop, execute, and assess the training of intangibles.

The interview session (*focus group*) will take 60 minutes (*90 minutes*) to complete.

Privacy Act Statement & Consent Form

Please note that your participation is voluntary – there are no consequences if you choose not to participate. Everything you say will remain confidential. We will be transcribing your responses with laptops or digitally recording your responses with a voice recorder, but our analysis and reporting of your responses will be at the group or aggregate level—not at the individual level. No information collected or response will be attributed or linked to any one individual.

To more fully explain the confidentiality process and how we will be using the information you provide today, I have a privacy statement and consent form for you to read over. Please take a few minutes to read over both documents. If you choose to participate, please sign the second page of the consent form and indicate that you are over 18 years old and are voluntarily agreeing to participate. Please let me know if you have any questions about the privacy statement, consent form, or the session today. (*Wait until it looks as though everyone has finished reading and then ask for the signed consent forms*).

Do you have any questions for me at this time either in terms of the content of our conversation or anything else? (*Answer any questions that may arise*).

In this section we will discuss the criticality of each of the behaviors with regards to Soldier mission readiness?

1. Of the behaviors/action statements listed on the questionnaire, which ones do you feel are the most important or urgent to making sure Soldiers are prepared and ready to accomplish the unit's mission (Mission Essential Task List or METL)?
 - Why are the ones you identified more important than the others?
 - Are any of them more important to effective Officer/NCO leadership?
2. Of the behaviors listed on our questionnaire, which do you feel are the least important for Soldier readiness and/or leader effectiveness in your unit?
 - Why are the ones you identified less important than the others?
 - Are any of them less important to effective Officer/NCO leadership?
3. Are there other, what might be termed psychological or intangible behaviors or actions that are not listed on the questionnaire?
 - What are they?
 - Why are they important to Soldier mission readiness?

In this second section we will discuss the behaviors from the questionnaire and any previous training you've received related to them.

1. Of the behaviors/action statements listed on the questionnaire, which ones are currently being trained in your unit?
 - How are the intangible constructs trained?
 - What training methods appear to be most effective with intangibles?
 - If the training was effective, can you describe some of the things about the training that made it successful?

- If not, what changes are needed? Can you describe some of the ways training might be improved?
 - Based on your current training experience, is there any difference in the frequency of training required for gaining/maintaining proficiency for any of the intangible behaviors?
2. Describe any other intangible behaviors that you currently receive training for other than the behaviors in the list we provided?
 3. Can you elaborate on why these behaviors were chosen for training?

This final set of questions cover a number of areas.

1. Is there a gap or greater need for more training concerning the intangible behaviors?
 - If yes, what intangibles need more training?
 - If no, are there intangibles that receive too much training time and focus?
2. Does your participation in tactical or technical training help train or develop you in the intangibles?
 - If yes, describe the type of tactical and technical training that best accomplished this?
 - What is it about the tactical or technical training topic, method of training, or other training characteristics that most contributes to training of the intangibles?
3. What recommendations or final comments do you have about the training or development of intangibles for Soldiers?

That concludes the questions that we had prepared for you.

De-Briefing:

Thank you again for your time and participation. Your comments have been very helpful. Our data-collection is on-going. There will be a report issued at the conclusion of this research. If you are interested in receiving a copy, please provide us with your e-mail address and we will send you one once it is complete.

APPENDIX D

QUANTITATIVE RESULTS: CRITICALITY TO SOLDIER MISSION READINESS

Quantitative Results: Criticality to Soldier Mission Readiness Behavior	N	Range	Mean	Standard Deviation
Doing what is right (legally and morally) even when no one is looking.	56	4	4.70	.83
Acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise.	56	3	4.63	.70
Recovering quickly from setbacks, shock, injuries, adversity, and stress while maintaining a mission and organizational focus.	56	2	4.61	.65
Keep going, even when exhausted, hungry, afraid, cold, and wet.	56	2	4.59	.63
Displaying commitment and allegiance to the Army in support of the United States.	56	4	4.57	.87
Mentally, morally, and emotionally facing fear, danger, and adversity.	56	3	4.54	.83
Accepting responsibility and consequences for one's actions.	56	4	4.54	.93
Taking the right action even when you don't feel like it.	56	4	4.52	.87
Setting and maintaining high standards of conduct.	56	4	4.48	.93
Physically facing fear, danger, and adversity.	56	4	4.48	.89
Displaying care and concern for Soldiers.	56	4	4.48	.87
Prioritizing tasks for mission accomplishment.	56	4	4.43	.87
Using information to make good decisions.	56	4	4.38	1.05
Putting the welfare of the nation, the Army, and one's subordinates ahead of personal welfare.	56	4	4.34	1.03
Reacting appropriately to new situations and changes in the environment.	56	3	4.34	.84
Demonstrating flexibility of mind to anticipate or adapt to uncertain or changing situations.	56	3	4.32	.88
Demonstrating moral and ethical reasoning to address situations, regardless of complexity or difficulty.	56	4	4.30	1.06
Observing and understanding new situations and changes in the environment.	56	4	4.25	.94

Quantitative Results: Criticality to Soldier Mission Readiness Behavior	N	Range	Mean	Standard Deviation
Demonstrating an accurate belief in one's ability to succeed at a task, reach a goal, or face challenges.	56	4	4.21	.95
Growing and thriving in the face of challenges.	56	4	4.14	1.09
Displaying the Army values in communication and behavior.	56	4	4.13	1.11
Building a mutual understanding of trust and concern in relationships.	56	4	4.07	1.13
Calling upon one's inner desire to put forth effort into meeting a need.	56	4	4.07	1.13
Sharing hardships with fellow Soldiers.	56	4	4.00	1.10
Accepting constructive criticism.	56	4	3.95	1.05
Keep going when pursuing long-term goals.	54	4	3.94	1.12
Making trade-offs in the application of tactics, techniques, and procedures.	55	4	3.93	1.07
Accepting responsibility for others.	56	4	3.91	1.27
Demonstrating an accurate awareness of one's behavior, traits, and abilities.	56	4	3.84	1.04
Introducing something new for the first time when needed or an opportunity exists.	56	3	3.71	1.07
Acting modestly and avoiding arrogant behavior.	56	4	3.63	1.29
Accepting dependence on others.	56	4	3.59	1.26
Taking pleasure in one's achievements.	56	4	3.16	1.35

APPENDIX E

QUANTITATIVE RESULTS: CURRENT TRAINING EFFECTIVENESS

Quantitative Results: Current Training Effectiveness Behavior	N	Range	Mean	Standard Deviation
Displaying the Army values in communication and behavior.	52	4	3.48	1.06
Displaying care and concern for Soldiers.	55	4	3.47	1.37
Putting the welfare of the nation, the Army, and one's subordinates ahead of personal welfare.	51	4	3.43	1.17
Accepting constructive criticism.	49	4	3.39	1.20
Displaying commitment and allegiance to the Army in support of the United States.	52	4	3.38	1.26
Building a mutual understanding of trust and concern in relationships.	53	4	3.23	1.15
Reacting appropriately to new situations and changes in the environment.	53	4	3.23	.99
Accepting responsibility for others.	52	4	3.21	1.29
Using information to make good decisions.	54	4	3.20	1.11
Setting and maintaining high standards of conduct.	55	4	3.20	1.25
Making trade-offs in the application of tactics, techniques, and procedures.	51	4	3.18	1.11
Physically facing fear, danger, and adversity.	54	4	3.17	1.23
Mentally, morally, and emotionally facing fear, danger, and adversity.	54	4	3.15	1.16
Introducing something new for the first time when needed or an opportunity exists Q11.	50	4	3.14	.99
Taking pleasure in one's achievements.	47	4	3.13	1.24
Prioritizing tasks for mission accomplishment.	53	4	3.11	1.05
Keep going, even when exhausted, hungry, afraid, cold, and wet.	54	4	3.11	1.24
Observing and understanding new situations and changes in the environment.	54	4	3.11	1.08
Demonstrating an accurate belief in one's ability to succeed at a task, reach a goal, or face challenges.	51	4	3.10	1.10

Quantitative Results: Current Training Effectiveness Behavior	N	Range	Mean	Standard Deviation
Sharing hardships with fellow Soldiers.	53	4	3.09	1.17
Demonstrating flexibility of mind to anticipate or adapt to uncertain or changing situations.	54	4	3.09	1.22
Growing and thriving in the face of challenges.	53	4	3.08	1.11
Demonstrating moral and ethical reasoning to address situations, regardless of complexity or difficulty.	55	4	3.07	1.22
Accepting responsibility and consequences for one's actions.	50	4	3.06	1.08
Calling upon one's inner desire to put forth effort into meeting a need.	52	4	3.06	1.06
Taking the right action even when you don't feel like it.	49	4	3.04	1.08
Demonstrating an accurate awareness of one's behavior, traits, and abilities.	51	4	3.04	1.25
Doing what is right (legally and morally) even when no one is looking.	54	4	3.02	1.28
Accepting dependence on others.	51	4	2.96	1.20
Acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise.	55	4	2.85	1.24
Keep going when pursuing long-term goals.	49	4	2.78	1.28
Acting modestly and avoiding arrogant behavior.	50	4	2.72	1.18
Recovering quickly from setbacks, shock, injuries, adversity, and stress while maintaining a mission and organizational focus.	54	4	2.65	1.12

APPENDIX F

QUANTITATIVE RESULTS: NEED FOR NEW/IMPROVED TRAINING

Quantitative Results: Need for New/Improved Training Behavior	N	Range	Mean	Standard Deviation
Recovering quickly from setbacks, shock, injuries, adversity, and stress while maintaining a mission and organizational focus.	56	4	3.80	1.27
Doing what is right (legally and morally) even when no one is looking.	56	4	3.68	1.31
Acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise.	56	4	3.57	1.29
Accepting responsibility and consequences for one's actions.	56	4	3.57	1.32
Keep going, even when exhausted, hungry, afraid, cold, and wet.	56	4	3.55	1.32
Observing and understanding new situations and changes in the environment.	56	4	3.54	1.16
Taking the right action even when you don't feel like it.	56	4	3.54	1.35
Prioritizing tasks for mission accomplishment.	55	4	3.54	1.21
Setting and maintaining high standards of conduct.	56	4	3.52	1.36
Physically facing fear, danger, and adversity.	56	4	3.46	1.33
Demonstrating moral and ethical reasoning to address situations, regardless of complexity or difficulty.	56	4	3.45	1.32
Mentally, morally, and emotionally facing fear, danger, and adversity.	56	4	3.43	1.32
Demonstrating flexibility of mind to anticipate or adapt to uncertain or changing situations.	56	4	3.43	1.25
Using information to make good decisions.	56	4	3.38	1.30
Calling upon one's inner desire to put forth effort into meeting a need.	56	4	3.36	1.27
Reacting appropriately to new situations and changes in the environment.	56	4	3.32	1.22

Quantitative Results: Need for New/Improved Training Behavior	N	Range	Mean	Standard Deviation
Demonstrating an accurate awareness of one's behavior, traits, and abilities.	56	4	3.32	1.24
Making trade-offs in the application of tactics, techniques, and procedures.	55	4	3.25	1.24
Growing and thriving in the face of challenges.	56	4	3.25	1.34
Keep going when pursuing long-term goals.	53	4	3.25	1.30
Displaying care and concern for Soldiers.	56	4	3.23	1.39
Introducing something new for the first time when needed or an opportunity exists.	56	4	3.16	1.22
Displaying commitment and allegiance to the Army in support of the United States.	55	4	3.14	1.39
Accepting constructive criticism.	56	4	3.14	1.39
Putting the welfare of the nation, the Army, and one's subordinates ahead of personal welfare.	56	4	3.14	1.37
Accepting responsibility for others.	56	4	3.13	1.38
Building a mutual understanding of trust and concern in relationships.	56	4	3.13	1.34
Demonstrating an accurate belief in one's ability to succeed at a task, reach a goal, or face challenges.	56	4	3.07	1.22
Sharing hardships with fellow Soldiers.	56	4	3.00	1.21
Displaying the Army values in communication and behavior.	56	4	3.00	1.40
Accepting dependence on others.	55	4	2.96	1.35
Acting modestly and avoiding arrogant behavior.	56	4	2.91	1.31
Taking pleasure in one's achievements.	56	4	2.43	1.23

APPENDIX G

QUANTITATIVE RESULTS: FREQUENCY OF TRAINING NEEDED

Quantitative Results: Frequency of Training Needed Behavior	N	Range	Mean	Standard Deviation
Recovering quickly from setbacks, shock, injuries, adversity, and stress while maintaining a mission and organizational focus.	55	3	4.04	.94
Doing what is right (legally and morally) even when no one is looking.	53	4	3.94	1.06
Displaying commitment and allegiance to the Army in support of the United States.	51	4	3.78	1.15
Setting and maintaining high standards of conduct.	53	4	3.77	1.27
Acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise.	56	4	3.77	1.08
Mentally, morally, and emotionally facing fear, danger, and adversity.	55	4	3.76	1.19
Accepting responsibility and consequences for one's actions.	52	4	3.71	1.18
Demonstrating moral and ethical reasoning to address situations, regardless of complexity or difficulty.	55	4	3.69	1.25
Taking the right action even when you don't feel like it.	51	4	3.67	1.13
Prioritizing tasks for mission accomplishment.	55	4	3.65	1.04
Growing and thriving in the face of challenges.	55	4	3.64	1.03
Displaying care and concern for Soldiers.	54	4	3.63	1.34
Calling upon one's inner desire to put forth effort into meeting a need.	56	4	3.63	1.11
Making trade-offs in the application of tactics, techniques, and procedures.	51	4	3.61	1.10
Keep going, even when exhausted, hungry, afraid, cold, and wet.	54	4	3.59	1.25
Using information to make good decisions.	55	4	3.58	1.12
Displaying the Army values in communication and behavior.	52	4	3.58	1.26
Physically facing fear, danger, and adversity.	54	4	3.54	1.26
Putting the welfare of the nation, the Army, and one's subordinates ahead of personal welfare	53	4	3.49	1.28

Quantitative Results: Frequency of Training Needed Behavior	N	Range	Mean	Standard Deviation
Reacting appropriately to new situations and changes in the environment.	54	4	3.48	1.15
Demonstrating flexibility of mind to anticipate or adapt to uncertain or changing situations.	54	4	3.44	1.24
Sharing hardships with fellow Soldiers.	52	4	3.44	1.23
Accepting constructive criticism.	50	4	3.42	1.25
Observing and understanding new situations and changes in the environment.	56	4	3.39	1.19
Keep going when pursuing long-term goals.	51	4	3.37	1.28
Demonstrating an accurate belief in one's ability to succeed at a task, reach a goal, or face challenges.	55	4	3.36	1.18
Building a mutual understanding of trust and concern in relationships.	54	4	3.35	1.32
Accepting dependence on others.	56	4	3.30	1.35
Demonstrating an accurate awareness of one's behavior, traits, and abilities.	55	4	3.27	1.19
Accepting responsibility for others.	55	4	3.25	1.35
Acting modestly and avoiding arrogant behavior.	51	4	3.10	1.32
Introducing something new for the first time when needed or an opportunity exists.	53	4	3.08	1.11
Taking pleasure in one's achievements.	50	4	2.62	1.34

APPENDIX H

QUALITATIVE RESULTS: THEME COUNTS

Theme #	Theme	Theme Count	% of Sessions
1. What is the criticality of each of the intangibles with regards to readiness or leader effectiveness?			
101	All of the behaviors are important.	5	24%
102	Most critical behaviors.	0	0%
102.3	Demonstrating flexibility of mind to anticipate or adapt to uncertain or changing situations.	10	48%
102.2	Acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise.	10	48%
102.1	Recovering quickly from setbacks, shock, injuries, adversity, and stress while maintaining a mission and organizational focus.	9	43%
102.19	Displaying commitment and allegiance to the Army in support of the United States.	8	38%
102.4	Displaying the Army values in communication and behavior.	7	33%
102.9	Accepting responsibility and consequences for one's actions.	7	33%
102.13	Doing what is right (legally and morally) even when no one is looking.	7	33%
102.14	Displaying care and concern for Soldiers.	7	33%
102.5	Demonstrating moral and ethical reasoning to address situations, regardless of complexity or difficulty.	6	29%
102.6	Putting the welfare of the nation, the Army, and one's subordinates ahead of personal welfare.	6	29%
102.7	Mentally, morally, and emotionally facing fear, danger, and adversity.	5	24%
102.12	Setting and maintaining high standards of conduct.	5	24%
102.199	Prioritizing tasks for mission accomplishment.	4	19%
102.26	Taking the right action even when you don't feel like it.	4	19%
102.15	Sharing hardships with fellow Soldiers.	3	14%
102.22	Growing and thriving in the face of challenges.	3	14%

Theme #	Theme	Theme Count	% of Sessions
102.23	Observing and understanding new situations and changes in the environment.	3	14%
102.24	Taking pleasure in one's achievements.	3	14%
102.16	Introducing something new for the first time when needed or an opportunity exists.	2	10%
102.21	Using information to make good decisions.	2	10%
102.27	Acting modestly and avoiding arrogant behavior.	2	10%
102.8	Demonstrating an accurate awareness of one's behavior, traits, and abilities.	1	5%
102.11	Physically facing fear, danger, and adversity.	1	5%
102.18	Demonstrating an accurate belief in one's ability to succeed at a task, reach a goal, or face challenges.	1	5%
102.299	Keep going, even when exhausted, hungry, afraid, cold, and wet.	1	5%
102.17	Accepting dependence on others.	0	0%
102.25	Calling upon one's inner desire to put forth effort into meeting a need.	0	0%
103	Most Critical Behaviors to Officer/NCO leadership.	0	0%
103.5	Displaying care and concern for Soldiers.	4	19%
103.1	Acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise.	4	19%
103.3	Setting and maintaining high standards of conduct.	3	14%
103.4	Leading by example.	3	14%
103.8	Accepting responsibility for others.	3	14%
103.7	Sharing hardships with fellow Soldiers.	2	10%
103.2	Demonstrating flexibility of mind to anticipate or adapt to uncertain or changing situations.	0	0%

Theme #	Theme	Theme Count	% of Sessions
103.6	Taking pleasure in one's achievements.	0	0%
104	Level of importance of some behaviors is different between NCOs and officers	2	10%
104.1	Behaviors that are specifically important to NCOs.	6	29%
104.2	Behaviors that are specifically important to officers.	4	19%
105	Behaviors are equally important to all Soldiers.	4	19%
106	Behaviors are more important at the lower levels.	1	5%
107	Least critical behaviors.	0	0%
107.4	Accepting dependence on others.	8	38%
107.1	Acting modestly and avoiding arrogant behavior.	7	33%
107.2	Accepting constructive criticism.	7	33%
107.3	Taking pleasure in one's achievements.	6	29%
107.5	Calling upon one's inner desire to put forth effort into meeting a need.	2	10%
108	Other critical behaviors not mentioned on the questionnaire list.	1	5%
108.1	Caring for Soldiers' family.	5	24%
108.2	Leaders need to show Soldiers the big picture.	3	14%
108.3	Physical Fitness.	1	5%
2. What are the intangibles that are being trained and the strengths of that training?			
201	Behaviors aren't being overtly trained.	5	24%
202	Behaviors that are currently trained.	0	0%

Theme #	Theme	Theme Count	% of Sessions
202.1	Prioritizing tasks for mission accomplishment.	9	43%
202.6	Mentally, morally, and emotionally facing fear, danger, and adversity.	9	43%
202.2	Keep going, even when exhausted, hungry, afraid, cold, and wet.	8	38%
202.3	Acting in the absence of orders, when existing orders no longer fit the situation, or when unforeseen opportunities or threats arise.	5	24%
202.8	Sharing hardships with fellow Soldiers.	5	24%
202.18	Growing and thriving in the face of challenges.	5	24%
202.19	Demonstrating flexibility of mind to anticipate or adapt to uncertain or changing situations.	5	24%
202.5	Demonstrating an accurate awareness of one's behavior, traits, and abilities.	4	19%
202.7	Displaying care and concern for Soldiers.	4	19%
202.11	Doing what is right (legally and morally) even when no one is looking.	4	19%
202.15	Setting and maintaining high standards of conduct.	4	19%
202.199	Displaying the Army values in communication and behavior.	3	14%
202.13	Observing and understanding new situations and changes in the environment.	3	14%
202.14	Demonstrating moral and ethical reasoning to address situations, regardless of complexity or difficulty.	3	14%
202.16	Using information to make good decisions.	3	14%
202.17	Recovering quickly from setbacks.	3	14%
202.4	Introducing something new for the first time when needed or an opportunity exists.	2	10%
202.9	Accepting responsibility and consequences for one's actions.	2	10%
202.12	Accepting dependence on others.	2	10%

Theme #	Theme	Theme Count	% of Sessions
202.299	Accepting constructive criticism.	2	10%
203	How Behaviors are effectively trained?	0	0%
203.1	<i>Daily training.</i>	0	0%
203.1.1	On the job training/Occurs naturally in the course of the day.	12	57%
203.1.2	PT.	6	29%
203.1.3	Leading by example.	3	14%
203.2	<i>Event-Based Training.</i>	2	10%
203.2.2	Field exercises.	12	57%
203.2.9	Situational exercises.	8	38%
203.2.16	Live fires.	6	29%
203.2.19	AARs.	5	24%
203.2.4	NTC.	5	24%
203.2.5	Counseling.	4	19%
203.2.26	Resiliency training.	4	19%
203.2.3	Lane training.	3	14%
203.2.15	Gunnery.	3	14%
203.2.12	NCOPD.	3	14%
203.2.18	Problem Solving Training.	3	14%
203.2.21	Iron horse rampage.	3	14%
203.2.27	Ranger School.	3	14%

Theme #	Theme	Theme Count	% of Sessions
203.2.1	Mungadi training.	2	10%
203.2.10	Classroom training.	2	10%
203.2.11	Briefings.	2	10%
203.2.13	Mentorship.	2	10%
203.2.14	Trauma lane.	2	10%
203.2.22	Combat life saver training.	2	10%
203.2.23	MSTC training.	2	10%
203.2.28	Basic training.	2	10%
203.2.7	Centurion challenge.	1	5%
203.2.8	Ethics training.	1	5%
203.2.20	Foot marches.	1	5%
203.2.24	Suicide prevention training.	1	5%
203.2.25	Crew training.	1	5%
203.2.6	Key leader engagements.	0	0%
203.2.17	Classroom.	0	0%
204	How Behaviors are ineffectively trained?	0	0%
204.1	Classroom training.	8	38%
204.2	PPT instruction	4	19%
204.4	Check the box training/Qualifying not training.	3	14%
204.3	Reading.	1	5%

Theme #	Theme	Theme Count	% of Sessions
205	Effective Training Features.	0	0%
205.5	Difficult/Rigorous/Challenging training.	8	38%
205.8	Experiential training.	8	38%
205.2	Realistic training.	7	33%
205.1	Repetition.	6	29%
205.3	Incorporate uncertainty into training.	6	29%
205.11	Training should train Soldiers to deal with stress.	4	19%
205.7	Team-based training.	3	14%
205.9	One on one with Soldiers.	3	14%
205.199	Training should build trust.	2	10%
205.4	Small group exercises.	1	5%
205.6	Providing positive reinforcement after failure.	1	5%
206	Training frequency Recommendations.	0	0%
206.1	Training needs to be done frequently.	6	29%
206.2	Some training needs to be done on a daily basis.	3	14%
206.3	Some training is less frequent like field exercises.	2	10%
207	Behaviors with specific training frequency recommendations.	1	5%
207.3	Taking pleasure in one's achievements.	2	10%
207.2	Discipline.	1	5%
207.1	Setting and maintaining high standards of conduct.	1	5%

Theme #	Theme	Theme Count	% of Sessions
3. What are the gaps and immediacy of need in construct training?			
301	No gap in training needs.	0	0%
302	Difficulties in closing the training gap.	0	0%
302.3	Not enough time for training.	13	62%
302.4	General difficulties in training a behavior.	9	43%
302.1	Behaviors are inherent to each person/cannot be trained/either a Soldier is proficient or they are not.	7	33%
302.2	Taskings interfere with training.	4	19%
303	No behaviors are trained too frequently.	1	5%
304	Behaviors where a gap was specifically mentioned.	1	5%
304.3	Recovering quickly from setbacks.	6	29%
304.4	Discipline (Soldiers lack).	6	29%
304.5	Army values (Soldiers lack).	6	29%
304.7	Being prepared for stress.	3	14%
304.2	Facing uncertainty.	2	10%
304.6	Soldiers need to be trained to be self-starters.	2	10%
304.8	Work ethic.	2	10%
304.1	Decision-making.	1	5%
304.9	Calling upon one's inner desire to put forth effort into meeting a need.	1	5%
305	Ways of knowing that a Soldier is mission ready.	5	24%